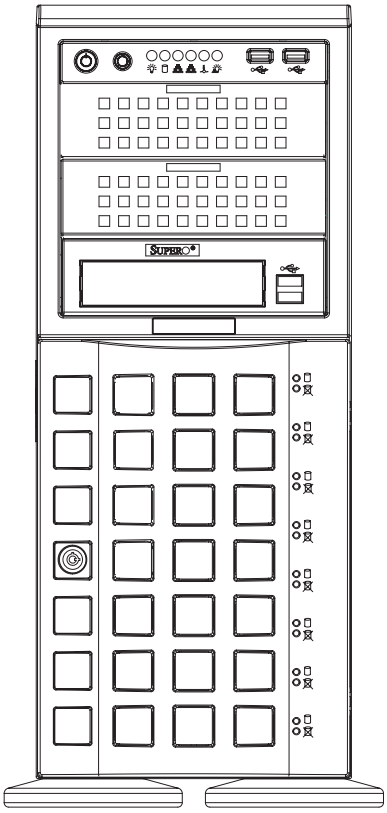
SUPER

SC745 CHASSIS Series



SC745TQ-R800(B)

SC745TQ-800(B)

SC745S2-R800(B)

SC745S2-800V(B)

USER'S MANUAL

1.0

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC745 4U chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC745 4U chassis features a unique and highly-optimized design for dual-core Xeon platforms. The chassis is equipped with a 800W high efficiency power supply for superb power savings. High performance fans provide ample optimized cooling for FB-DIMM memory modules and 4 hot-swap drive bays offers maximum storage capacity in a 4U form factor.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Notes

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with this chassis and describes the main features of the SC745 chassis. This chapter also includes contact information.

Chapter 2: System Safety

This chapter lists warnings, precautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed before installing and servicing this chassis.

Chapter 3: Chassis Components

Refer here for details on this chassis model including the fans, bays, airflow shields, and other components.

Chapter 4: System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 5: Chassis Setup and Installation

Refer to this chapter for detailed information on this chassis. You should follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 6: Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Compatible Backplanes

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A: Chassis Cables

Appendix B: Power Supply Specifications

Appendix C: SAS 743TQ Backplane Manual

Appendix D: SCA 743S Backplane Manual

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Chapter 1:

Introduction

1-1 Overview

Supermicro's SC745 4U chassis features a unique and highly-optimized design. The chassis is equipped with high efficiency power supply. High performance fans provide ample optimized cooling for FB-DIMM memory modules and 8 hot-swap drive bays offer maximum storage capacity in a 4U form factor.

1-2 Shipping List

Part Numbers

Please visit the following link for the latest shipping lists and part numbers for your particular chassis model http://www.supermicro.com/products/chassis/4U/?chs=745

SC745 Chassis				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC745TQ-R800 (B)	DP Dual-core Xeon	8x SAS/ SATA	7x FF	800W (Redundant)
SC745S2-R800 (B)	DP Dual-core Xeon	8x U320 SCSI 2-Channel	7x FF	800W (Redundant)
SC745TQ-800 (B)	DP Dual-core Xeon	8x SAS/ SATA	7x FF	800W
SC745S2-800 (B)	DP Dual-core Xeon	8x U320 SCSI 2-Channel	7x FF	800W

1-3 Chassis Features

The SC745 4U high performance chassis includes the following features:

CPU

The SC745 Chassis supports a DP Dual-core Xeon processor. Please refer to the motherboard specifications pages on our web site for updates on supported processors.

Hard Drives

The SC745 Chassis features 8 slots for U320 SCSI or SAS/SATA drives. These drives are hot swappable. Once setup correctly, these drives can be removed without powering down the server. In addition, these drives support SAF-TE (SCSI) and SES2 (SAS/SATA).

I/O Expansion slots

Each version of the SC745 Chassis includes seven full I/O expansion slots.

Peripheral Drives

Each SC745 Chassis provides three 5.25” Peripheral Drive Bays for Floppy Drive, DVD-ROM/CD-ROM Drive, or additional hard drives.

Other Features

Other onboard features are included to promote system health. These include various four cooling fans, a convenient power switch, reset button, and 5 LED indicators.

1-4 Contacting SuperMicro

Headquarters

Address:	SuperMicro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	SuperMicro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	SuperMicro, Taiwan
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support	
Email:	support@supermicro.com.tw
Tel:	886-2-8228-1366, ext. 132 or 139

Notes

Chapter 2:

System Safety

2-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in order given should enable you to have your chassis setup and operational within a minimal amount of time. This quick set up assumes that you are an experienced technician, familiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. When configured, the SC745 chassis includes one power supply. "R" models (i.e. SC745S-R650V Chassis) include a redundant power supply and require two grounded outlets.

2-3 Preparing for Setup

The SC745 Chassis includes a set of rail assemblies, including mounting brackets and mounting screws you will need to install the systems into the rack. Please read this manual in its entirety before you begin the installation procedure.

2-4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC745 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM and floppy drives (not necessary for hot swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard Battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- DVD-ROM Laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing any board from its anti-static bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3:

Chassis Components

3-1 Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2 Components

Chassis

Chassis include three 5.25" peripheral drive bays and eight hard drive bays. For the latest shipping lists, visit our Web site at: http://www.supermicro.com.

This chassis accepts three hot-swappable system cooling fans and one (sometimes two) power supplies. SC745 models come in beige and black.

Backplane

Each SC745 chassis comes with a 4U backplane. Depending on your order, your backplane will accept SAS/SATA or SCSI. For more information regarding compatible backplanes, view the appendices found at the end of this manual. In addition, visit our Web site for the latest information: http://www.supermicro.com.

Fans

The SC745 chassis accepts three system fans and two rear exhaust fans. System fans for SC745 chassis are powered from the serverboard. These fans are 4U high and are powered by 3-pin connectors.

Mounting Rails (optional)

The SC745 can be placed in a rack for secure storage and use. To setup your rack, follow the step-by-step instructions included in this manual.

Power Supply

Each SC745 chassis model includes a high-efficiency power supply rated at 800 Watts. In the unlikely event your power supply fails, replacement is simple and can be done without tools.

Air Shroud

Air shrouds are shields, usually plastic, that funnel air directly to where it is needed. Always use the air shroud included with your chassis.

3-3 Where to get Replacement Components

Though not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors / System Integrators / Resellers. A list of Supermicro Authorized Distributors / System Integrators /Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4:

System Interface

4-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. Most SC745 models are two buttons on the chassis a control panel: a reset button and an on/off switch. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

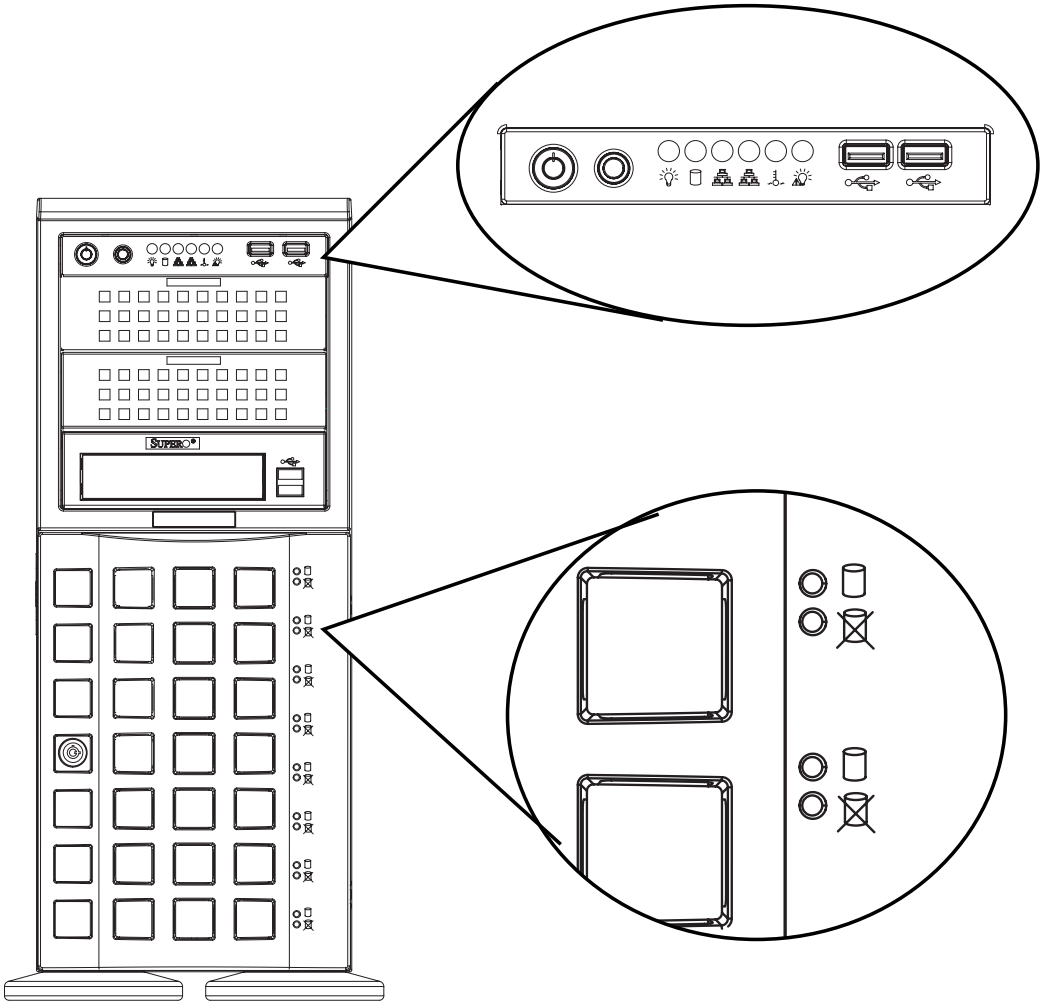
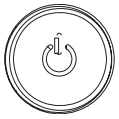


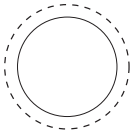
Figure 4-1: Front LEDs

4-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are power on/off button and a reset button.



- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.



- **Reset:** The reset button is used to reboot the system.

4-3 Control Panel LEDs

The control panel located on the front of the SC745 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

- **Overheat/Fan Fail:** When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat condition exists.

- **NIC2:** Indicates network activity on GLAN2 when flashing.

- **NIC1:** Indicates network activity on GLAN1 when flashing.

- **HDD:** Indicates IDE channel activity. SAS/SATA drive, SCSI drive, and/or DVD-ROM drive activity when flashing.

- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

4-4 Drive Carrier LEDs

Your chassis uses SAS/SATA or SCSI drives, but not both.

SAS/SATA Drives

Each SAS/SATA drive carrier has two LEDs.

- **Green:** Each Serial ATA drive carrier has a green LED. When illuminated, this green LED (on the front of the SATA drive carrier) indicates drive activity. A

connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.

- **Red:** The red LED to indicate an SAS/SATA drive failure. If one of the SAS/SATA drives fail, you should be notified by your system management software.

SCSI Drives

Each SCSI drive carrier has two LEDs.

- **Green:** When illuminated, the green LED on the front of the SCSI drive carrier indicates drive activity. A connection to the SCSI SCA backplane enables this LED to blink on and off when that particular drive is being accessed.

- **Red:** The SAF-TE compliant backplane activates the red LED to indicate a drive failure. If one of the SCSI drives fail, you should be notified by your system management software.

Chapter 5:

Chassis Setup and Maintenance

5-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need to install components and perform maintenance is a Phillips screwdriver. Print this page to use as a reference while setting up your chassis.

5-2 Installation Steps

Step 1: Remove Chassis Cover and Front Cover

Step 2: Configure the Storage Module

Step 3: Install Hard Drives

Step 4: Install Motherboard

Step 4: Install Air Shroud and Check Airflow

General Maintenance

General Maintenance: Systems Fans

General Maintenance: Power Supply

Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

5-3 Installation Step 1: Remove the Chassis Cover

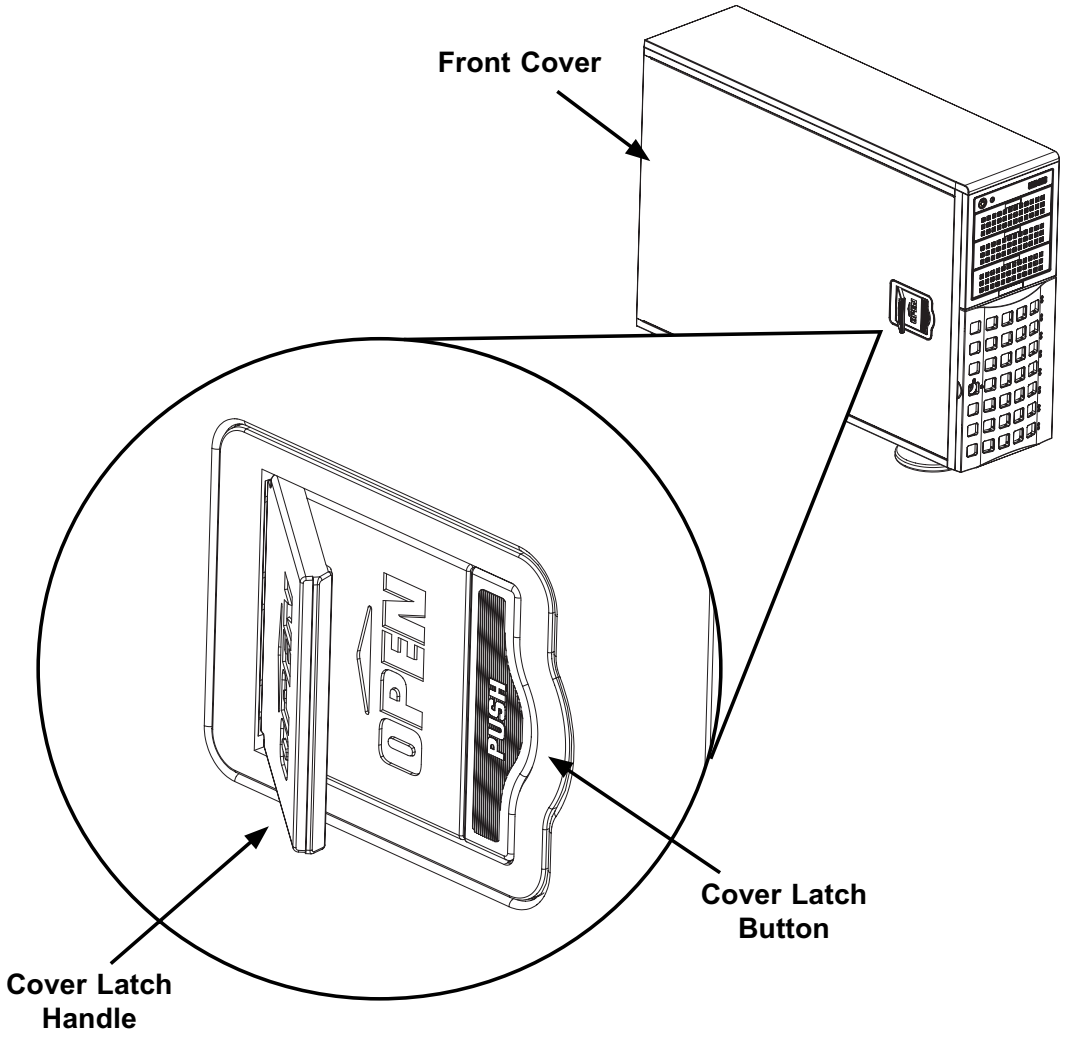


Figure 5-1: Removing the Chassis Cover

To remove the chassis cover:

1. Push the cover latch button to release the latch handle.
2. Pull the cover off the chassis using the latch handle.

To replace the chassis cover:

1. With the latch handle open.
2. Pull the cover off the chassis using the latch handle.

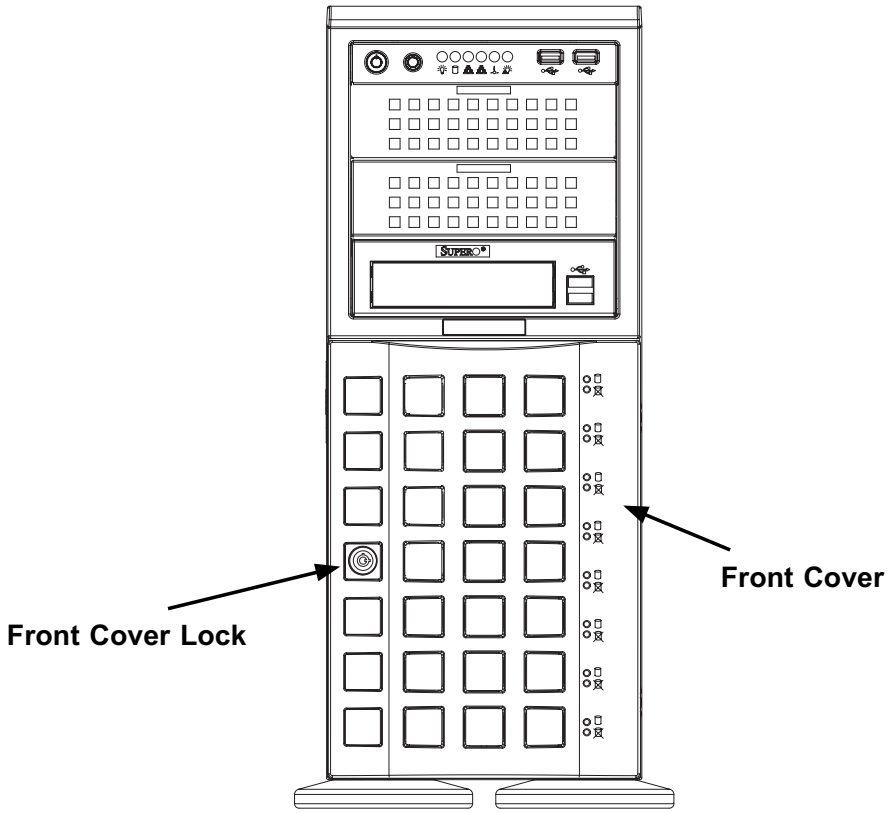


Figure 5-2: Opening the Front Cover

The Front Cover

The front cover houses up to eight hot-swappable hard drives. The cover can be locked to prevent unauthorized access. The key to this lock is shipped with the system.

To remove the front cover

1. Unlock the front cover using the key shipped with the system.

2. Pull the cover open using the handle near the lock.

5-4 Installation Step 2: Configure the Storage Module

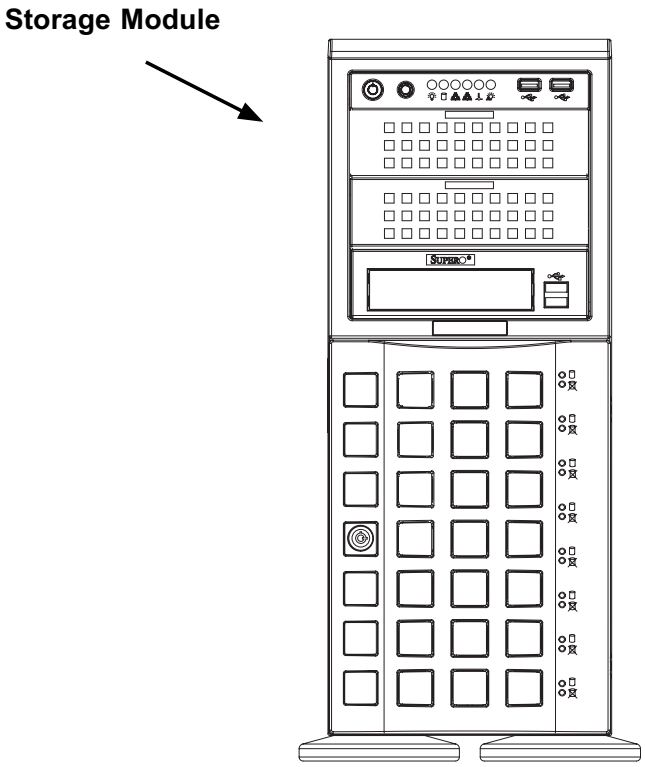


Figure 5-3: Chassis in Tower Mode

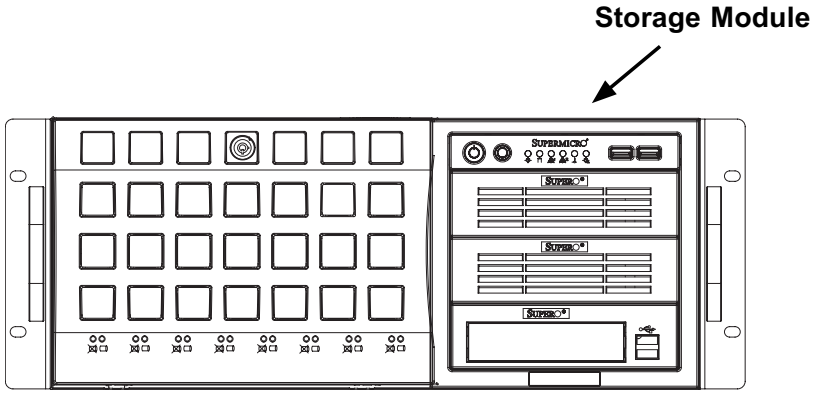


Figure 5-4: Chassis in Rack Mount Mode

Tower or Rack Configuration

The SC745 chassis is shipped in tower mode and can be immediately used as desktop server. If the chassis is to be used in a rack, you must turn the storage module 90 degrees. This can be done before, during, or after setup.

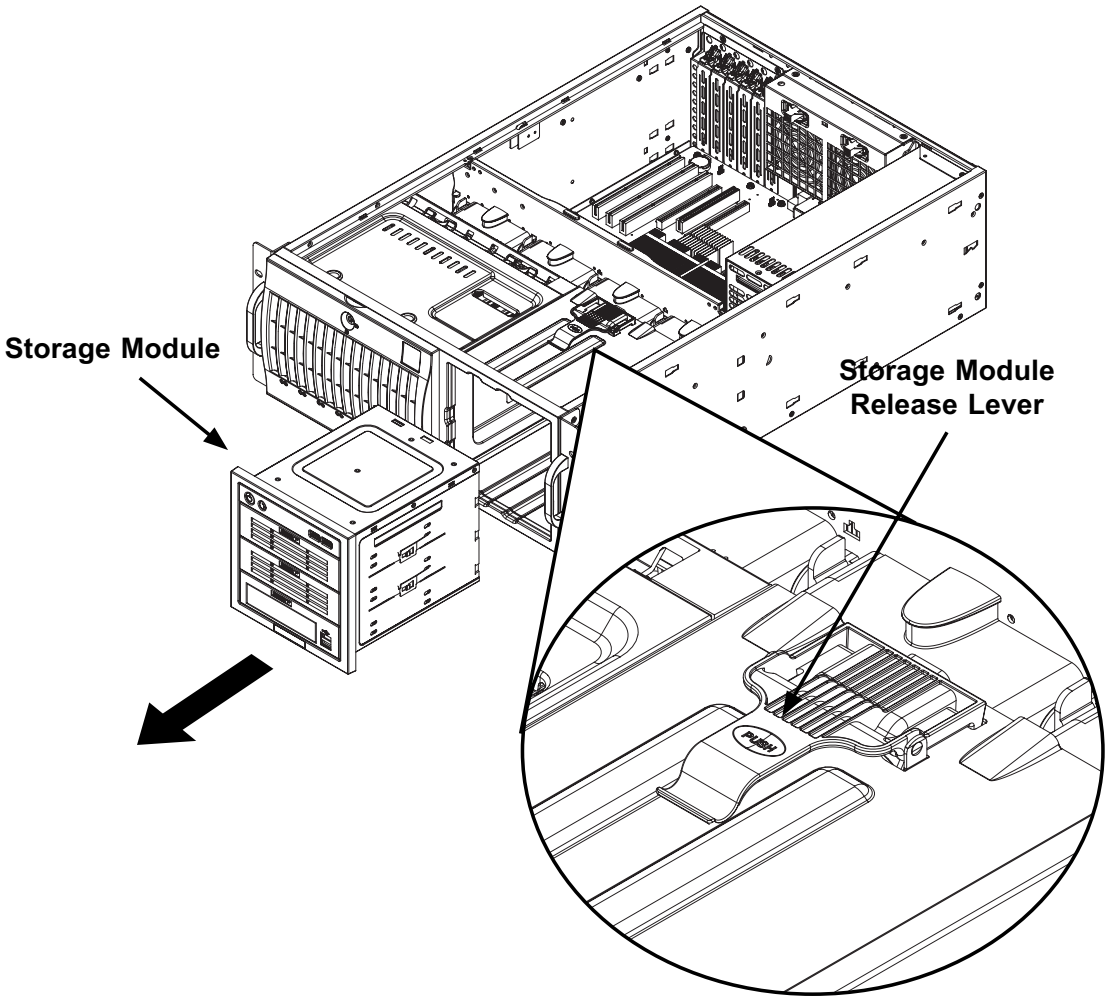


Figure 5-5: Remove the Storage Module

To rotate the storage module for rack mounting:

1. Open the chassis cover.

2. Locate the storage module and disconnect any cables from the storage module to any component in the chassis.

3. Push the storage module release lever. This lever unlocks the storage module.

4. Grasp the external edges of the storage module and pull the unit from the chassis.

5. Turn the Storage Module 90 degrees (as illustrated).

6. Reinsert the module into the chassis and reconnect the cords.

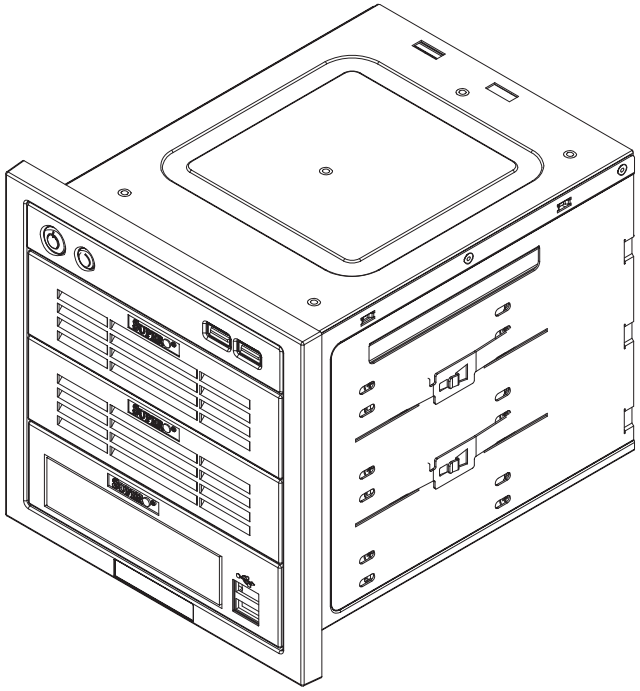


Figure 5-6: Chassis Storage Module

Adding Drives to the Storage Module

The storage module includes three full sized drive bays and the front LED panel. The storage module can be set up one of three ways:

A. Add up to three extra hard drives to the drive trays.

B. Add up to three peripheral drives (CD-ROM, DVD-ROM, etc.) drive trays.

C. Add five hot swappable hard drives to the storage module. This configuration requires a mobile rack. More information on mobile rack installation can be found in the appendices at the end of this manual.

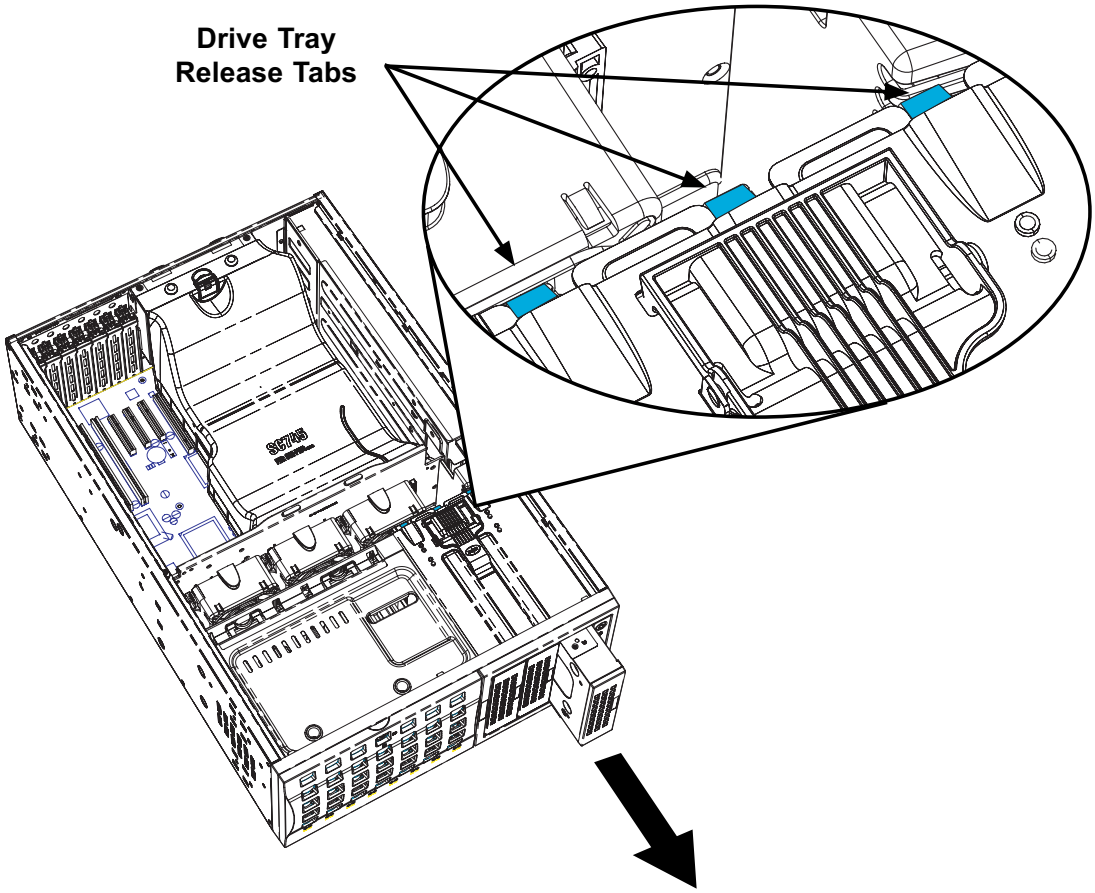


Figure 5-7: Remove Drive Tray

To add up to three hard drives to the drive trays:

1. Open the chassis cover.

2. Locate the drive tray release tab for the slot you want to place the peripheral drive.

3. Push the drive tray toward the front of the chassis.

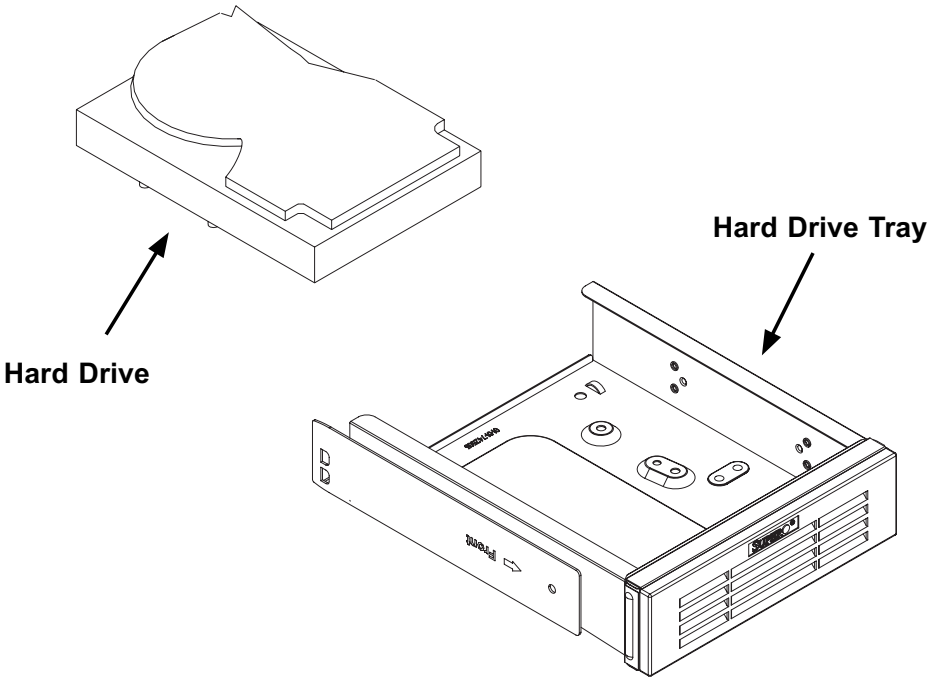


Figure 5-8: Add a Hard Drive to the Drive Tray

4. Place the hard drive to the hard drive tray. Make sure The hard drive can be SAS or SCSI depending on your motherboard. The hard drive may not completely fill the tray.

5. Secure the hard drive to the tray with four screws from the bottom.

6. Slide the hard drive into the chassis until the tray clicks into place.

7. Repeat these steps for each hard drive tray.

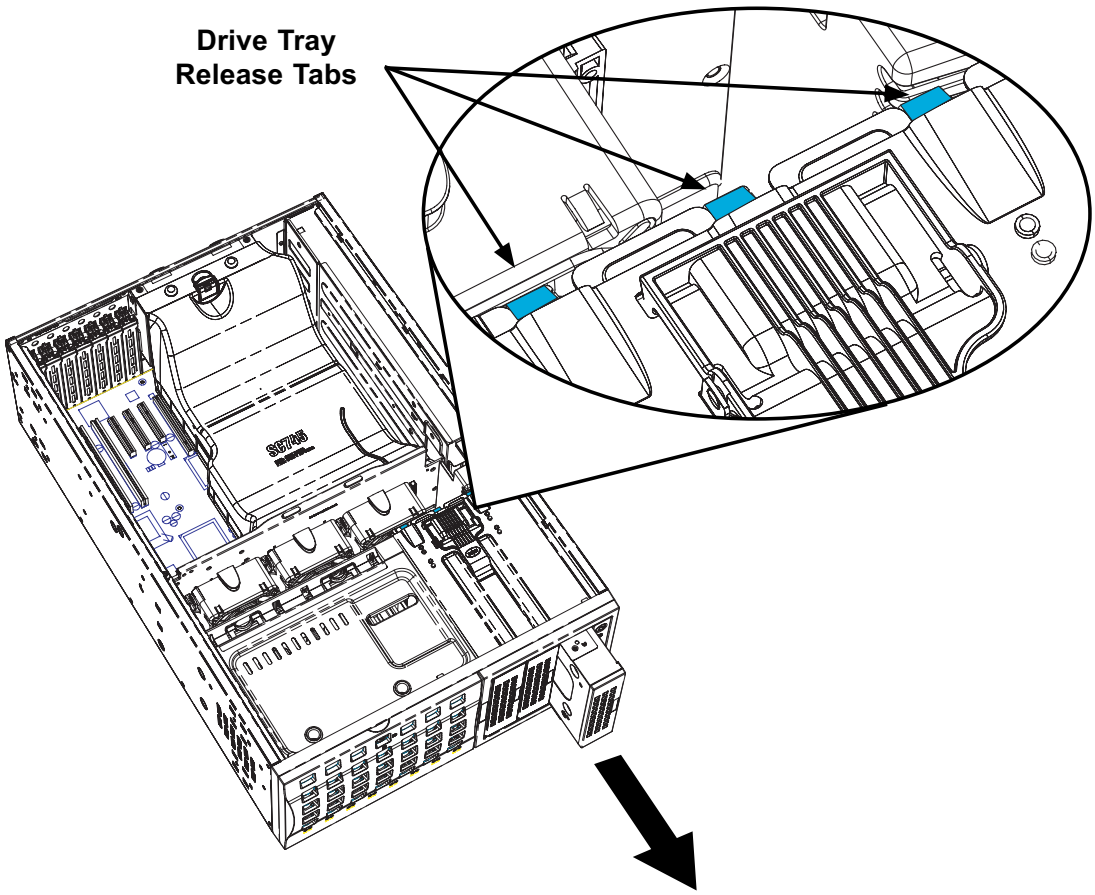


Figure 5-9: Remove Drive Tray

To add up to three peripheral drives (DVD-ROM, CD-ROM, floppy drive, etc.) to the drive trays:

1. Open the chassis cover.

2. Locate the drive tray release tab for the slot you want to place the peripheral drive.

3. Push the drive tray toward the front of the chassis.

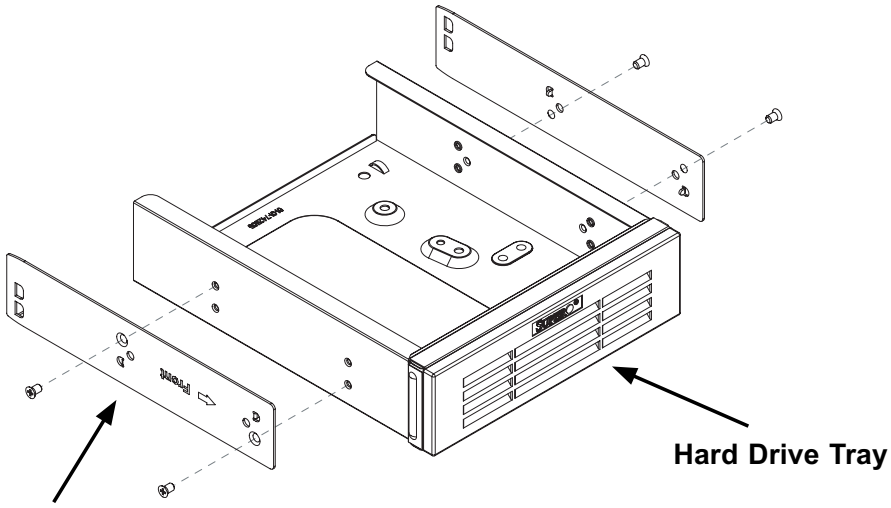


Figure 5-10: Add Hard Drive Rails to the DVD-ROM Drive

4. Remove the hard drive tray rails from the hard drive tray. To do this, you must remove two screws from each side.

5. Attach the rails to a DVD-ROM, CD-ROM, floppy drive, or other peripheral. The rails should fit any standard sized peripherals.

6. Slide the peripheral into the chassis until the tray clicks into place.

7. Repeat these steps for each hard drive tray.

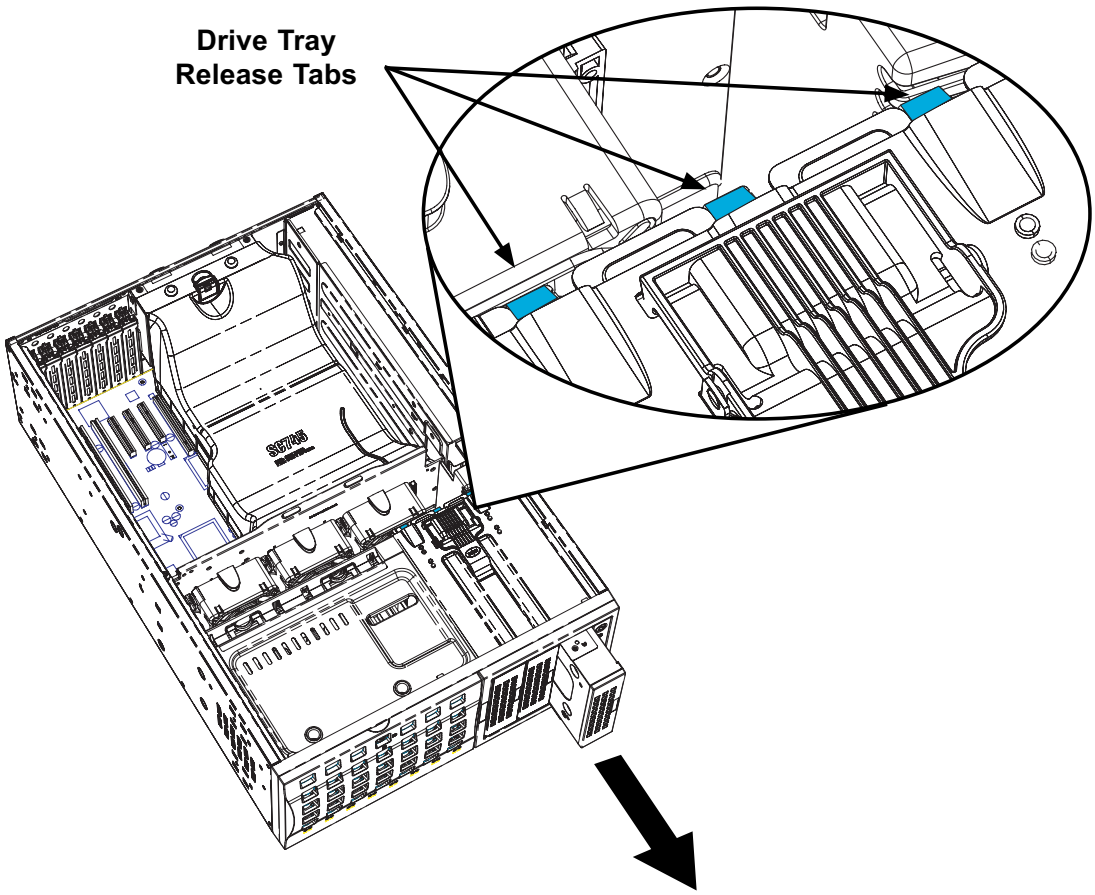


Figure 5-11: Remove Drive Tray

To add five hard drives using a SuperMicro mobile rack:

The SC745 chassis accepts a CSE-M35S (SCSI) or CSE-M35T-1/CSE-M35TQ mobile rack to install extra hot swappable hard drives. The mobile rack goes into the storage module which goes into the chassis.

For more information on mobile rack installation and use, refer to the appendix located at the end of this manual.

1. Open the chassis cover.

2. Locate the drive release tabs.

3. Pull the first drive release tab and push the drive tray toward the front of the chassis. Repeat this for all three tabs.

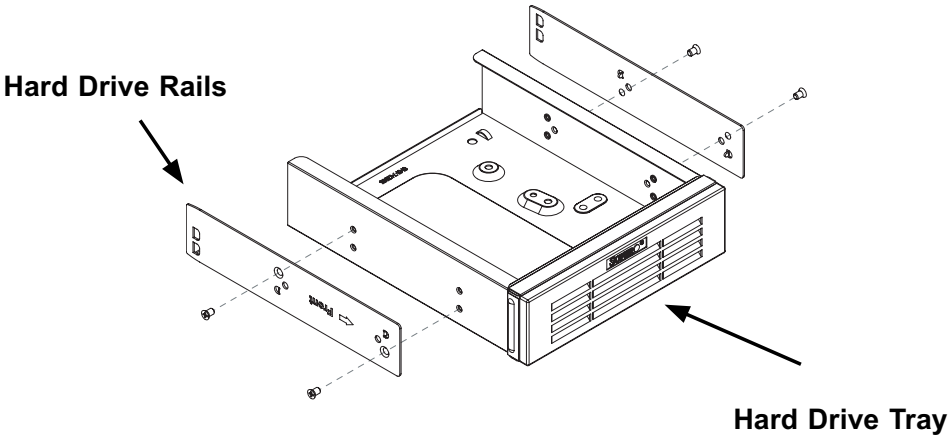


Figure 5-12: Remove the Hard Drive Rails

4. Remove the hard drive tray rails from the hard drive tray. To do this, you must remove two screws from each side. Do this for all three hard drive trays.

5. Attach the rails to a DVD-ROM, CD-ROM, floppy drive, or other peripheral. The rails should fit any standard sized peripherals.

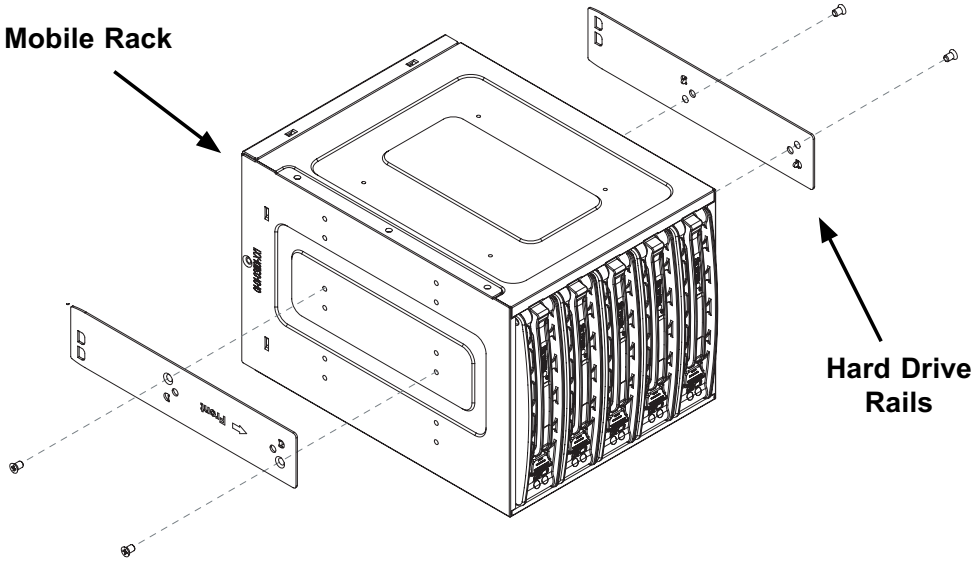


Figure 5-13: Add Hard Drive Rails to Storage Rack

6. Install all six hard drive rails to the mobile rack. Each individual rail requires two screws. Also, make sure the arrow on the rail points toward the front of the chassis.

7. Slide the mobile rack into the storage module and chassis.

5-5 Installation Step 3: Install Hard Drives

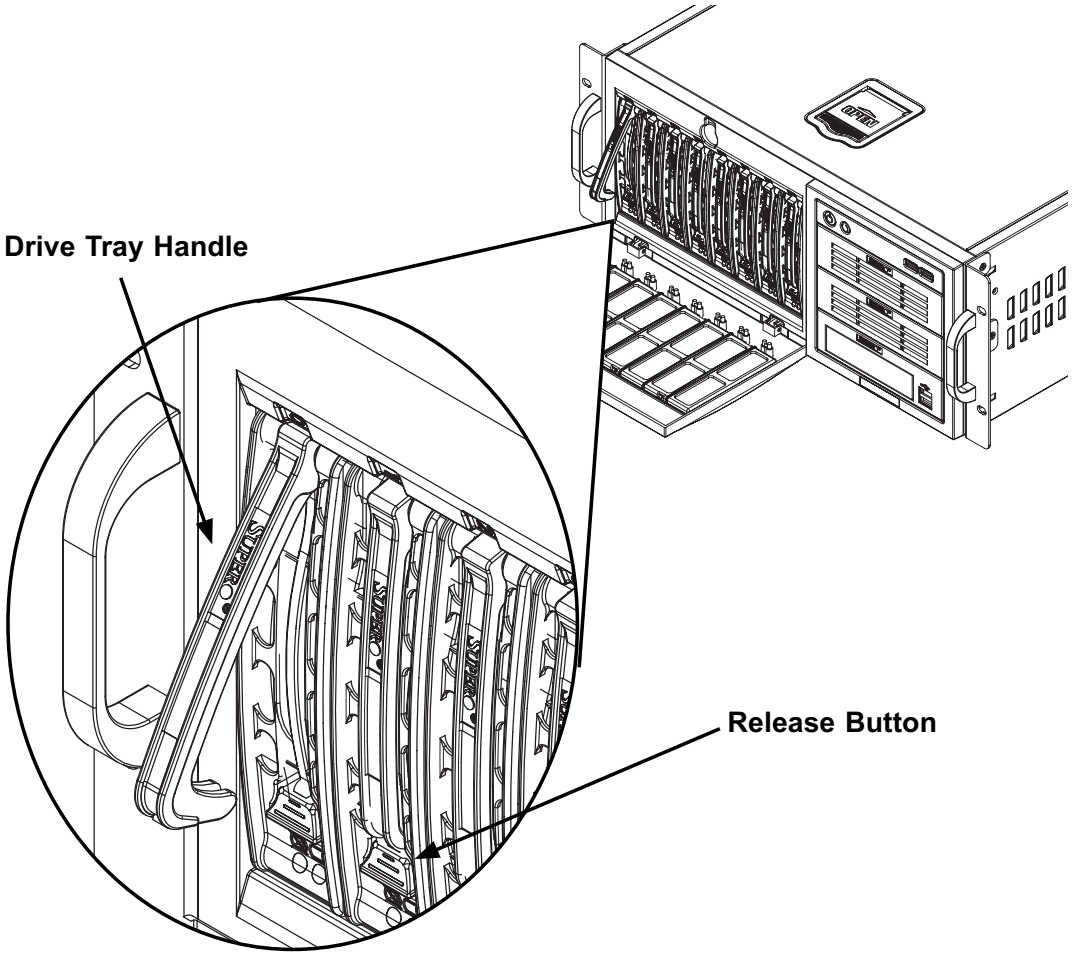


Figure 5-14: Install Hard Drives

To install hard drives to the chassis:

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays.

1. Unlock and open the chassis cover.

2. Press the release button to extend the drive tray handle.

3. Using the handle, pull the drive tray out by the handle. The drive is hot swappable; there are no cables to disconnect.

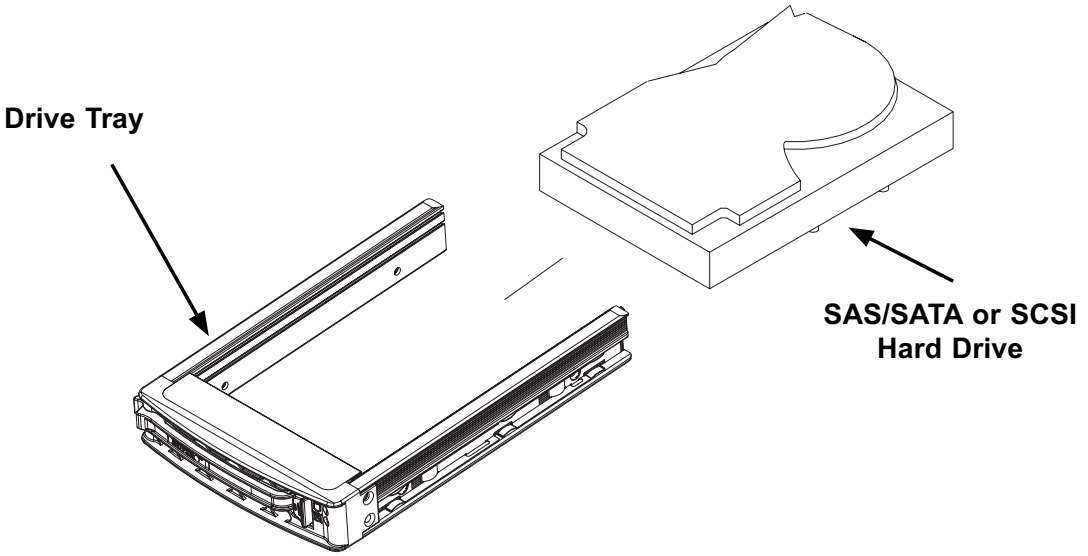


Figure 5-115: Remove Dummy Drive Tray

4. Remove the screws holding the drive tray to the dummy drive.

5. Place a hard drive in the drive tray.

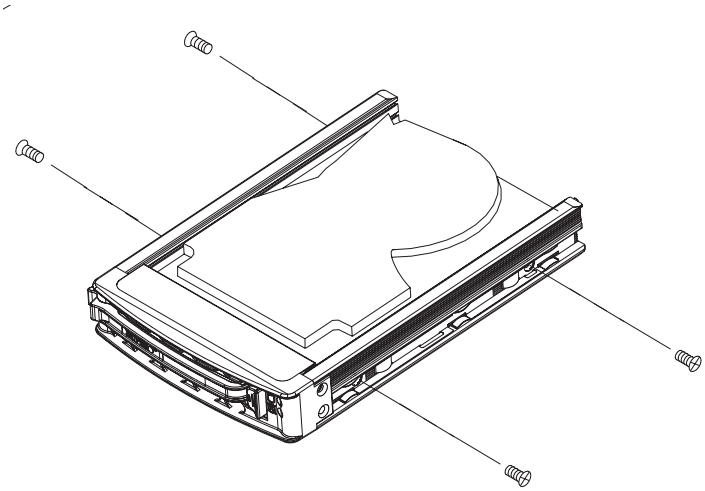


Figure 5-16: Install Hard Drive

6. Secure the hard drive to the tray using four screws.

7 Insert the hard drive into the chassis. To do this:

7a. Press the hard drive release button to extend the drive tray handle.

7b. Insert the hard drive into the chassis and close the handle to lock the hard drive into place.

5-6 Installation Step 4: Install the Motherboard

I/O Slot Shield

The I/O shield holds the motherboard ports in place. Install the I/O shield before you install the motherboard.

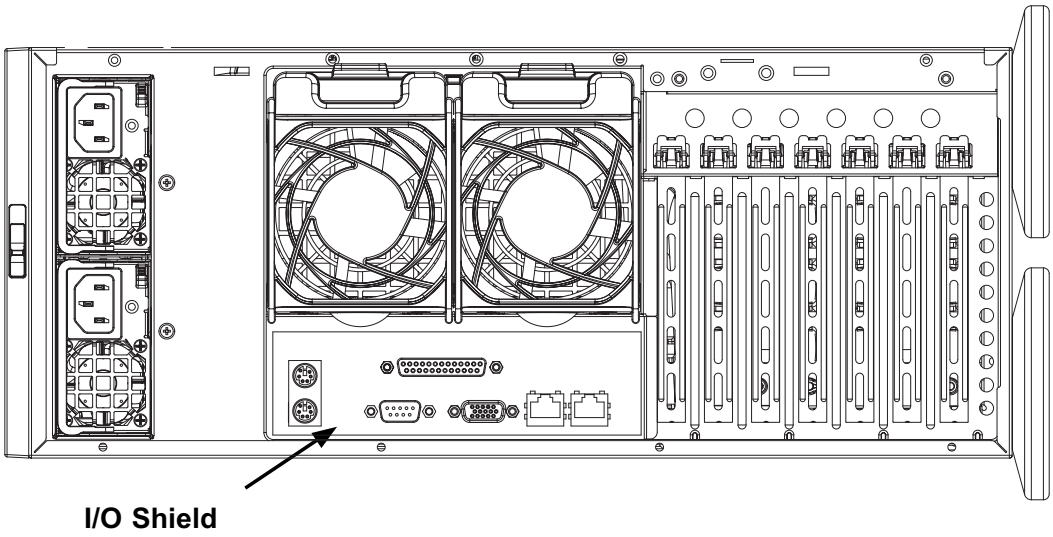


Figure 5-17: SC745 Chassis I/O Shield

To install the I/O shield:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Open the chassis cover.

3. Choose the proper I/O shield for the motherboard you are installing.

4. With the illustrations facing the outside of the chassis, place the shield into the space provided. Once installed, the motherboard ports will hold the I/O shield in place.

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC745 chassis packaging includes optional standoffs (hexagon shaped posts). These standoffs accept the rounded Phillips head screws included in the SC745 accessories packaging.

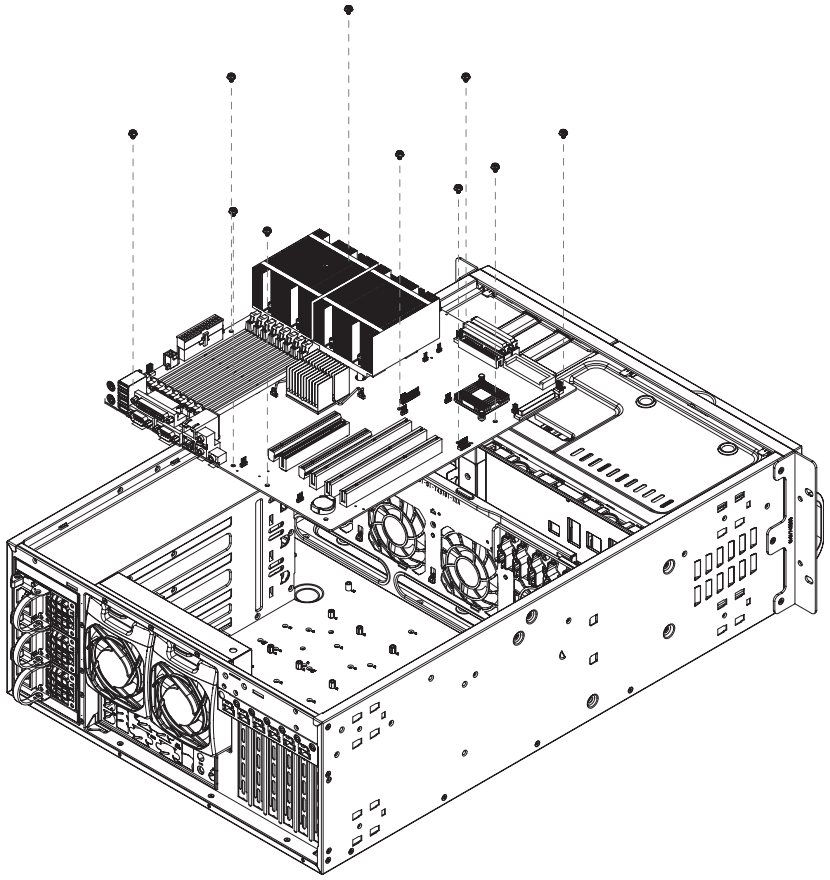


Figure 5-18: Chassis Standoffs

To install the motherboard:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Disconnect the power supply and lay the chassis on a flat surface.

3. Open the chassis cover.

4. As required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this:

   A. Place a hexagonal standoff screw through the bottom the chassis.

   B. Secure the screw with the hexagon nut (rounded side up).

5. Lay the motherboard on the chassis aligning the permanent and optional standoffs.

6. Secure the motherboard to the chassis using the rounded, Phillips head screws.

7. Secure the CPU(s), heatsinks, and other components to the motherboard, chassis, and/or backplane as needed.

Power Supply Connections

Connect each of the following cables, as required, by your motherboard manufacturer. In some instances, some cables may not need to be connected. Some cables may not be available with your model.

Power Supply Cable			
Name	**Number**	**Connects to:**	**Description**
20-pin or 24-pin power cable	1	motherboard	20-pin or 24-pin power cable provides electricity to the motherboard. Has 20 - 24 yellow, black, gray, red, orange, green and blue wires.
HDD (Hard Drive) power cable	2	backplane	Each cable has 3 connectors (two Hard Drive [HDD] and one Floppy Drive [FDD]). Attach the HDD connectors to the backplane. **If you are using a SuperMicro backplane, the FDD connector does not need to be attached.**
8-pin motherboard cable	1	motherboard	Provides power to the motherboard CPU. This cable has 2 black and 2 yellow wires.
4-pin motherboard cable	1	motherboard	Provides power to PCI expansion card. This cable has 2 black and 2 yellow wires.
5-pin SMBus power cable (small)	1	motherboard	Allows the SM (System Management) Bus to monitor power supply
2-pin INT cable	1	motherboard	Intrusion detection cable allows the system to log when the server chassis has been opened.

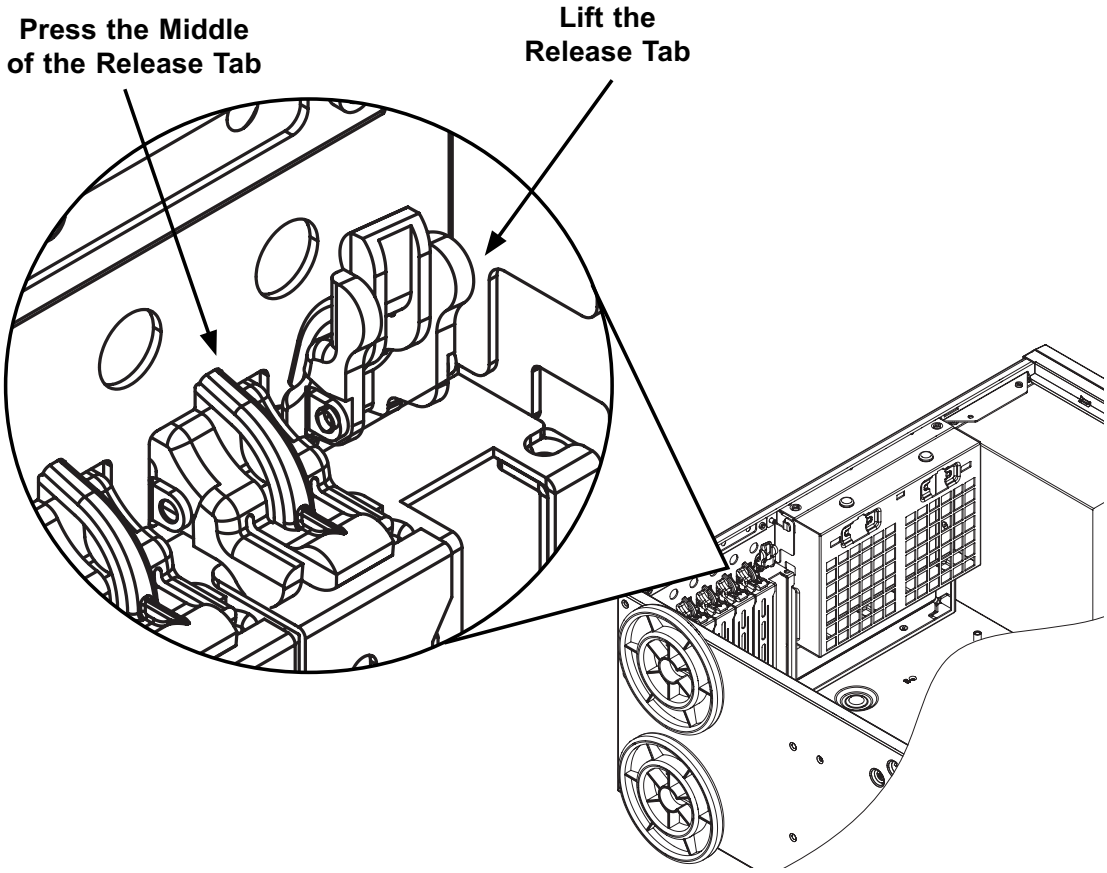


Figure 5-19: Add-on Card/Expansion Card Port

Add-on Card/Expansion Slot Setup

After motherboard installation, install add-on cards to the chassis, such as PCI cards.

To install add-on and expansion cards:

1. Locate the release tab on the top of the PCI bracket.
2. Gently apply pressure in the middle of the release tab to unlock the PCI Slot bracket.
3. Pull the release tab upward.

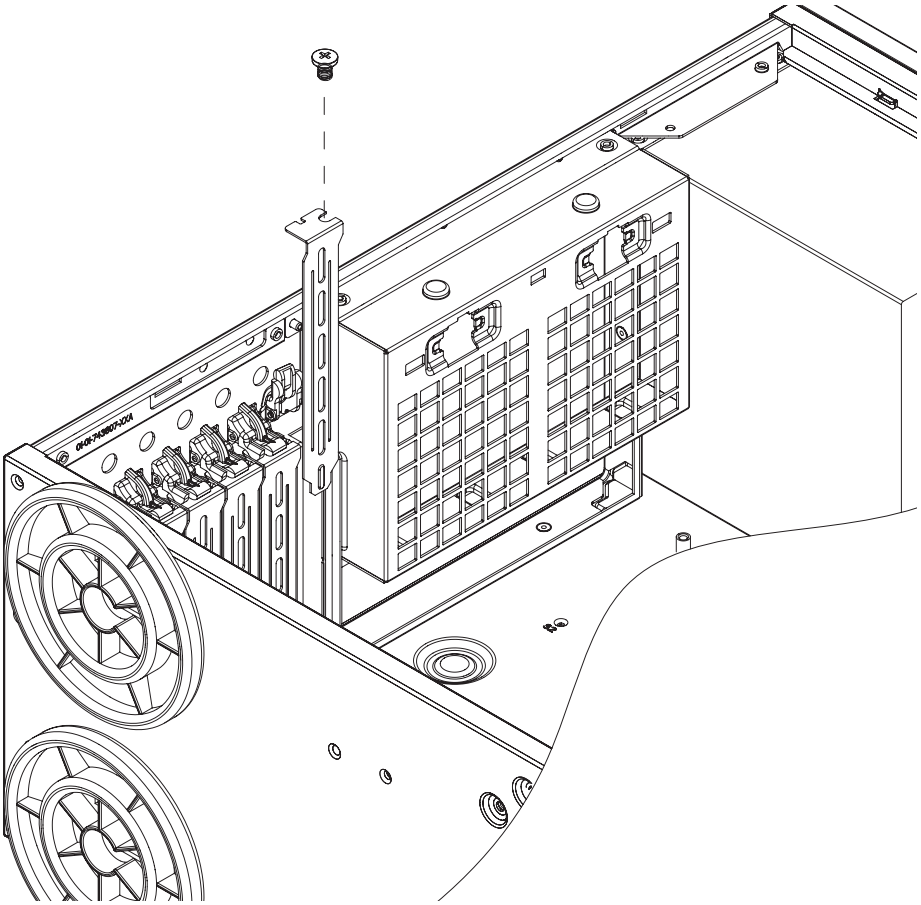


Figure 5-20: Remove PCI card slot guard

4. Remove the screw holding the bracket in place and pull the bracket from the chassis.

5. Install your PCI card or other add-on card into the PCI slot bracket and motherboard. To do this, slide the PCI card (with "L" bracket) into the PCI slot and secure the card to the motherboard.

6. Push the PCI bracket release tab down until it locks into place with an audible "click".

7. Secure the PCI card with the screw previously removed from the chassis.

8. Repeat this process with each PCI card you want to install into the chassis.

5-7 Installation Step 5: Install the Air Shroud

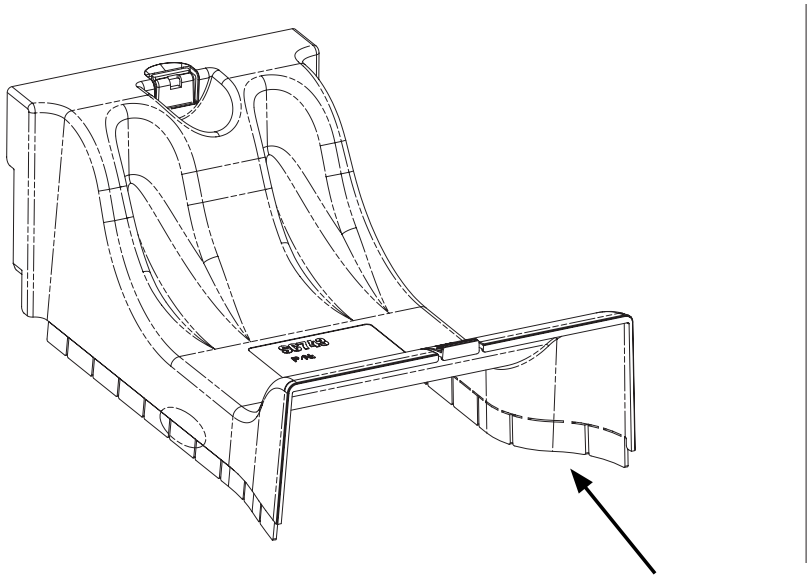


Figure 5-21: Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. The SC745 chassis air shroud does not require screws to set up.

NOTE: The air shroud includes tabs that can be removed if motherboard components prevent the air shroud from fitting securely. Remove tabs only if necessary.

To install the air shroud

1. Remove the chassis cover.

2. Place air shroud in your chassis with the fan side touching the edge of the two fans closest to the power supply. The other side should cover both the rear fans.

3. Replace the chassis cover.

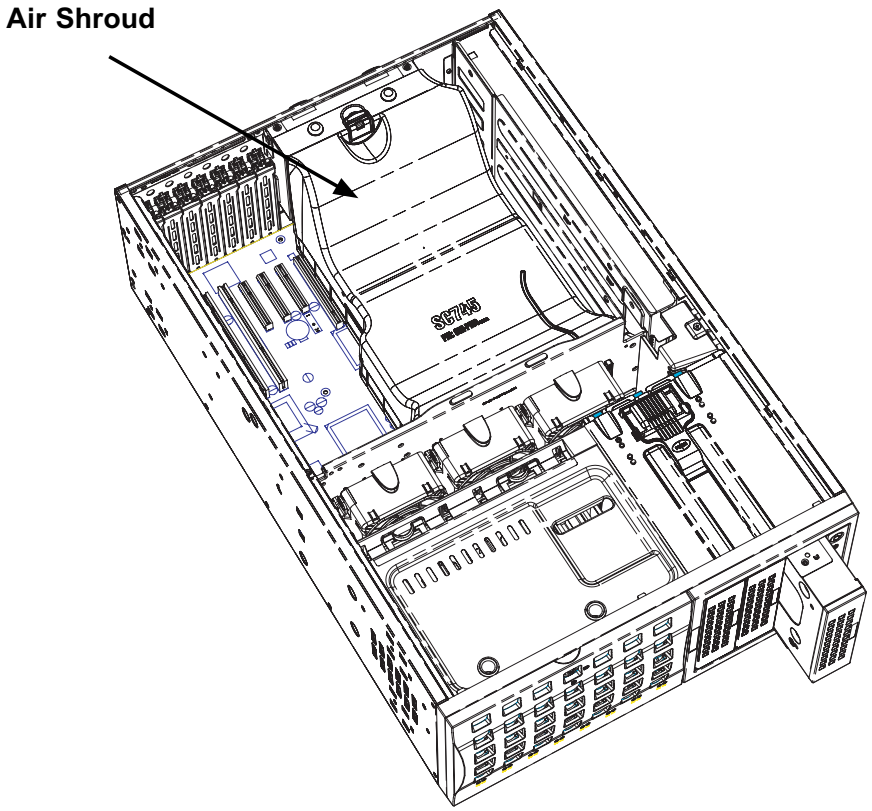


Figure 5-22: Air Shroud in place

To check the server's air flow

1. Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.

2. Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.

3. Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs inform you of system status. See “Chapter 3: System Interface” for details on the LEDs and the control panel buttons.

Installation Complete

In most cases, the chassis power supply and fans are pre-installed. If you need to install fans continue to the Systems Fan section of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

5-8 System Fans

Five heavy duty fans provide cooling for the chassis. Three fans are located in the front of the chassis with two fans in the rear. These fans circulate air through the chassis as a means of lowering the chassis internal temperature.

The fans come pre-installed to the chassis. Each fan is hot-swappable and can be replaced without removing any connections.

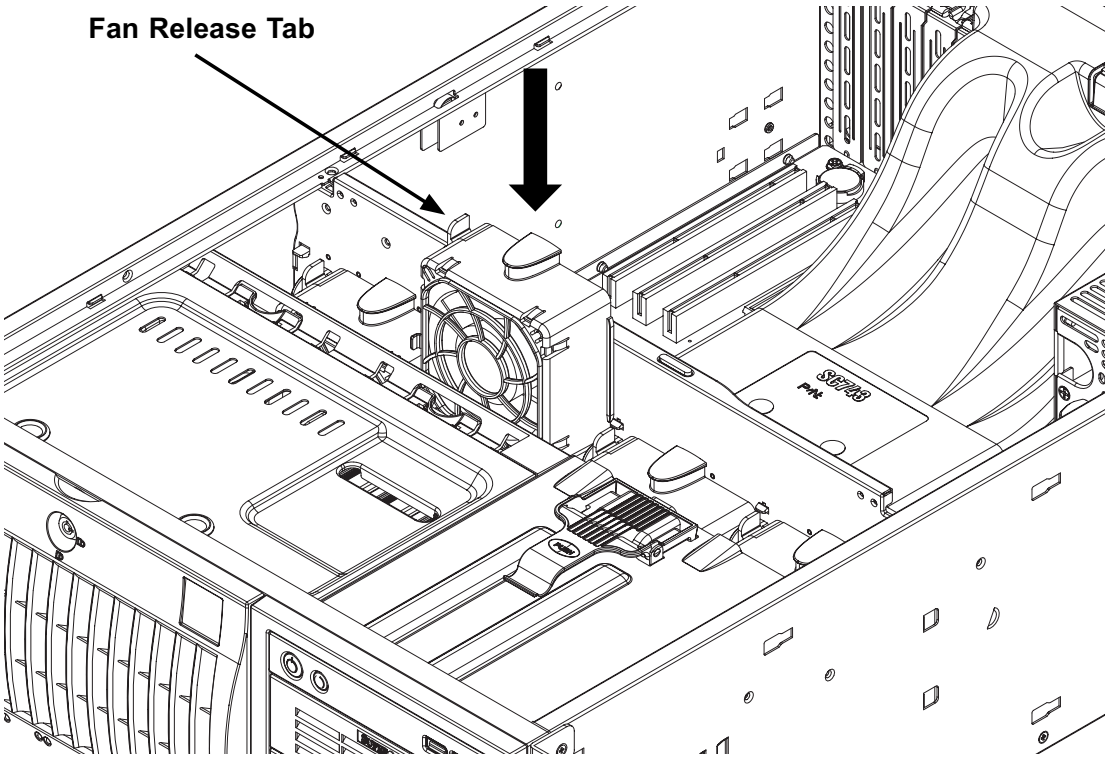


Figure 5-23: Front Chassis Fans

To replace a system fan:

1. Open the chassis cover and determine which fan has failed. Because the fans are hot swappable, the chassis does not have to be powered down.

2. Press the fan release tab and lift the failed fan from the chassis. Front fans must be pulled straight up. Rear fans must be tilted forward and then pulled out of the housing.

3. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans. As soon as the fan is connected, it will begin working.

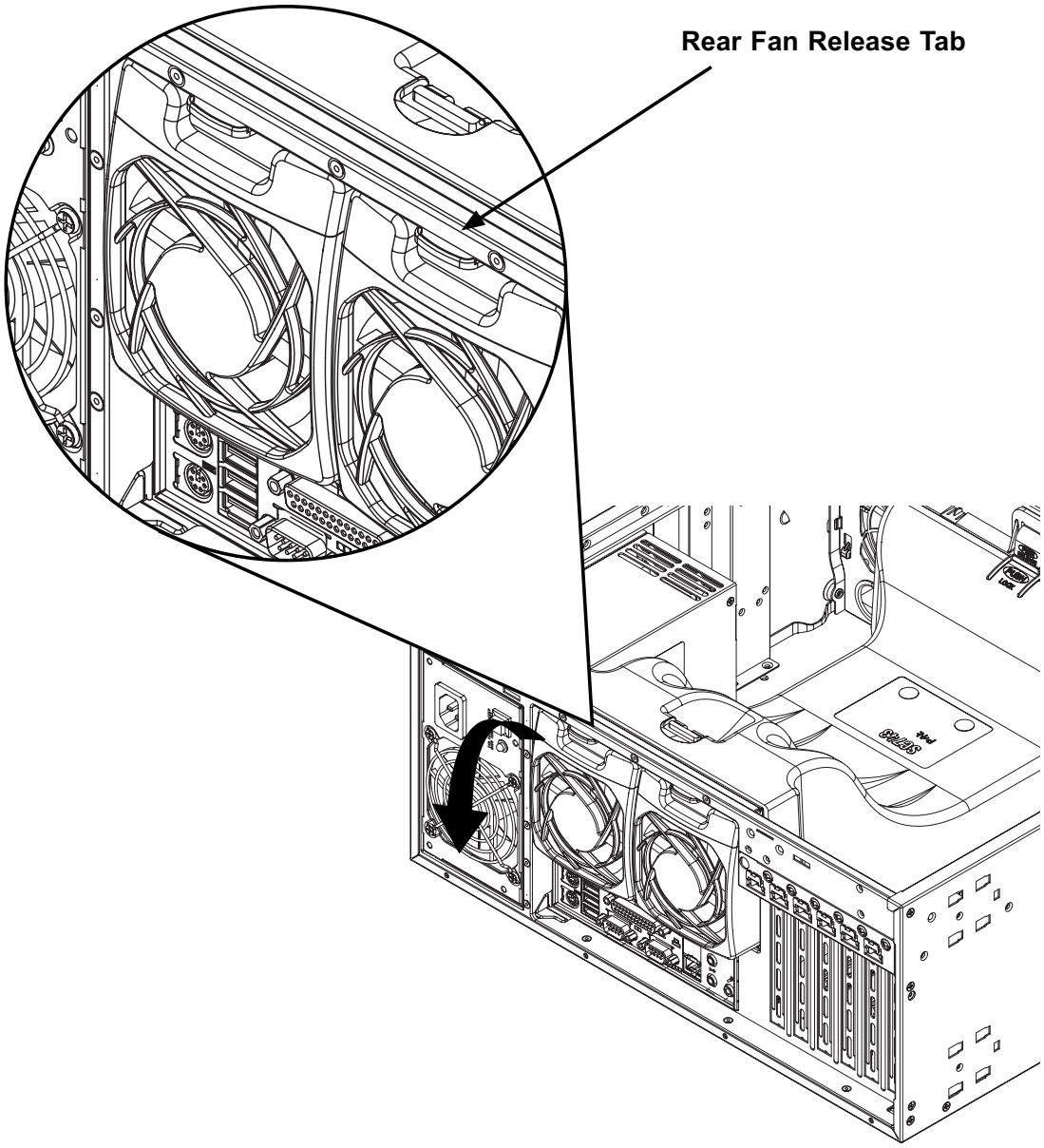


Figure 5-24: Rear Chassis Fans

To replace a rear chassis fan:

1. Press the rear fan release tab.
2. Pull the fan from the chassis top first.
3. Place the new fan in the chassis bottom first.
4. Push the fan fully into the housing until the fan clicks into place.

5-9 Power Supply

Depending on your chassis model, the SC745 Chassis has a 700W or 800W (redundant) power supply. This power supply is auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Power Supply Failure

In redundant power supply models, the system automatically switches to the second power supply when the first fails. If your system has only one power supply, the system shuts down in the unlikely event of a power failure.

To replace the power supply:

1. Power down the server and unplug the power cord. If your chassis includes a redundant power supply (at least two power modules), you can leave the server running and remove only one power supply.
2. Push the release tab (on the back of the power supply) as illustrated.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with the same model.
5. Push the new power supply module into the power bay until you hear a click.
6. Plug the AC power cord back into the module and power up the server.

Notes

Chapter 6:

Rack Installation

6-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time.

6-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

6-3 Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.
- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug hard drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

6-4 Rack Mounting Instructions

This section provides information on installing the SC745 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

NOTE: The outer rail is adjustable from 26" to 38.25".

Removing the Chassis Cover and Feet

The SC745 chassis is shipped with the chassis cover and feet pre-installed. Both the feet and cover must be removed for before installing the rails.

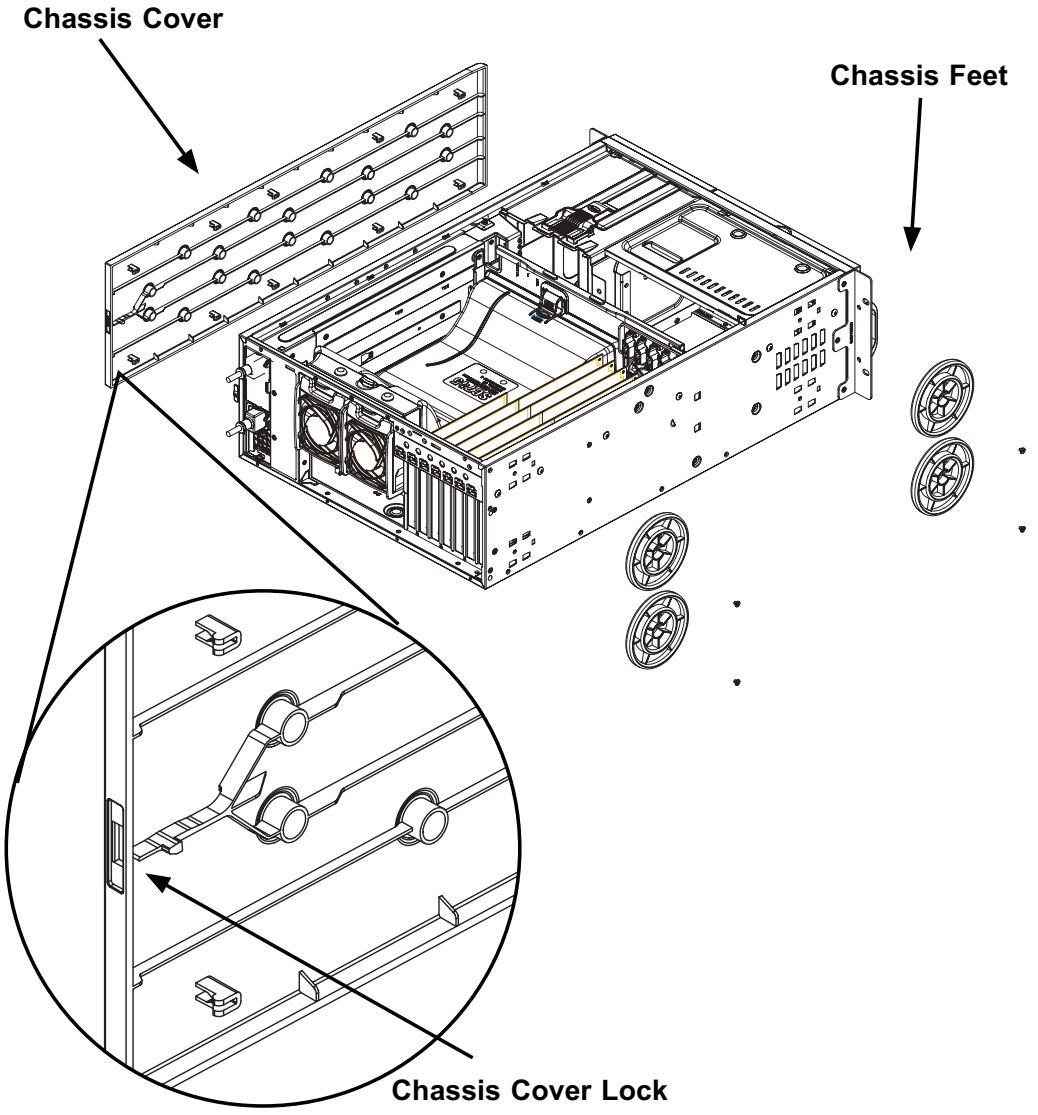


Figure 6-1: Remove Feet and Chassis Top Cover

To remove the chassis top cover

1. Locate the chassis cover lock (blue lever) at the rear of the chassis cover.
2. Slide the chassis cover lock to the right and push chassis cover forward.
3. Lift the chassis top cover off the chassis.

To remove the chassis feet

1. Place the chassis on its side with the chassis side cover facing upward.
2. Remove the screw holding the chassis foot in place.
3. The foot lock is a tab located in the center of the foot that prevents the foot from sliding. Using a flat head screwdriver, **gently** lift the foot lock upward and slide the foot toward the rear of the chassis.
4. Repeat steps 2 and 3 with each remaining foot.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

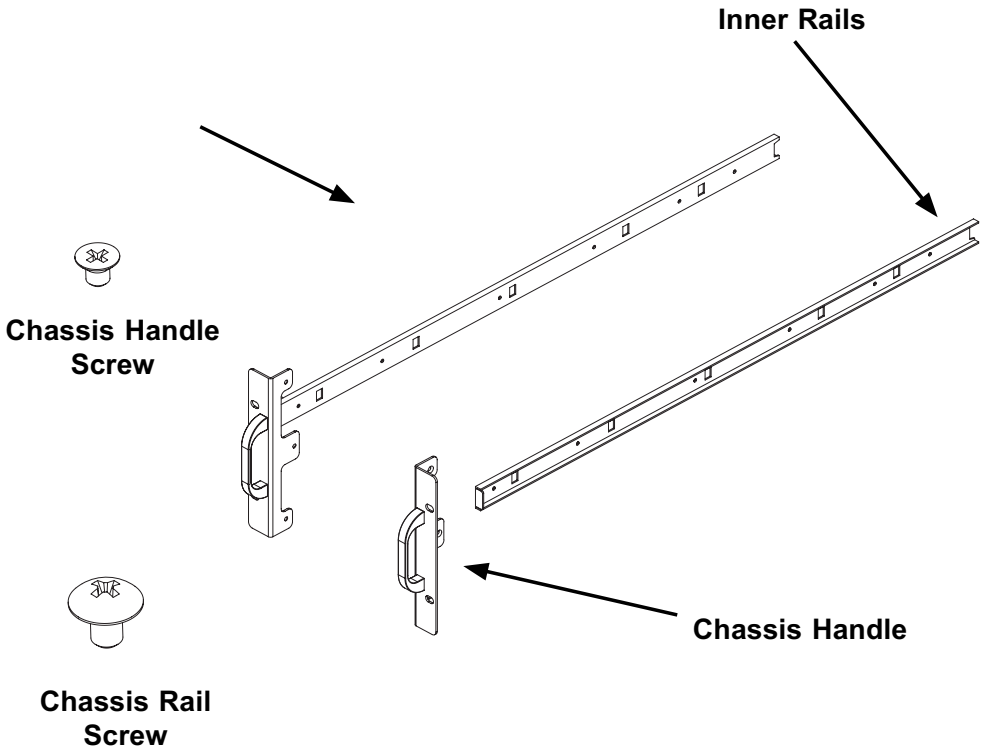


Figure 6-2. Identifying the Inner Rails and Chassis Handles

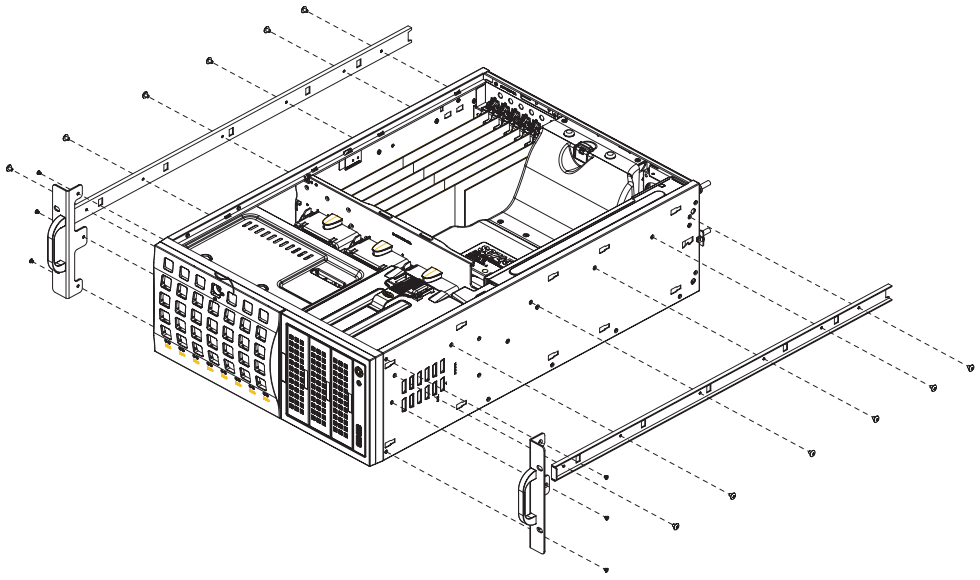


Figure 6-3. Installing the Inner Rack Rails

To install the chassis handles and inner rails

1. Locate the chassis handles (2) and handle screws (6).

2. Align the chassis handle with the front of the chassis and secure with the three chassis handle screws.

3. Repeats steps 1 and 2 with the other handle.

4. Locate the inner rails (2) and screws (12) in the shipping package.

5. Align the inner rails against the chassis, as shown. Confirm that the rails are flushed against the edge of the chassis.

6. Tighten the screws. Do not over tighten.

7. Repeat steps 5 and 6 with the other inner rail.

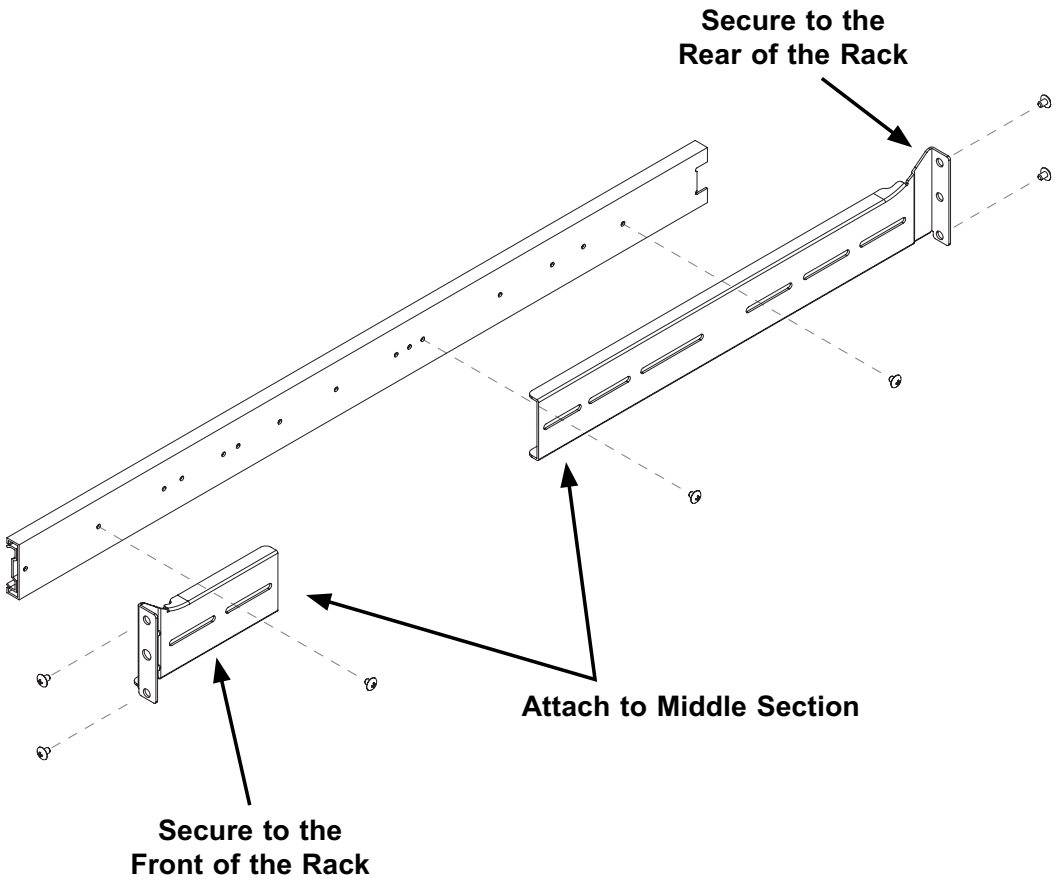


Figure 6-4: Assembling the Outer Rails

To install the outer rails to the rack

1. Attach the front and rear short brackets to the outside of the long bracket. Both bracket ends must face the same direction.

2. Adjust both the brackets to the proper distance so that the rail fits snugly into the rack.

3. Secure the front side of the outer rail with two M5 screws and the rear side of the outer rail with three M5 screws. **NOTE:** The outer rail is adjustable from approximately 26" to 38.25".

4. Repeat steps 1-3 for the left outer rail.

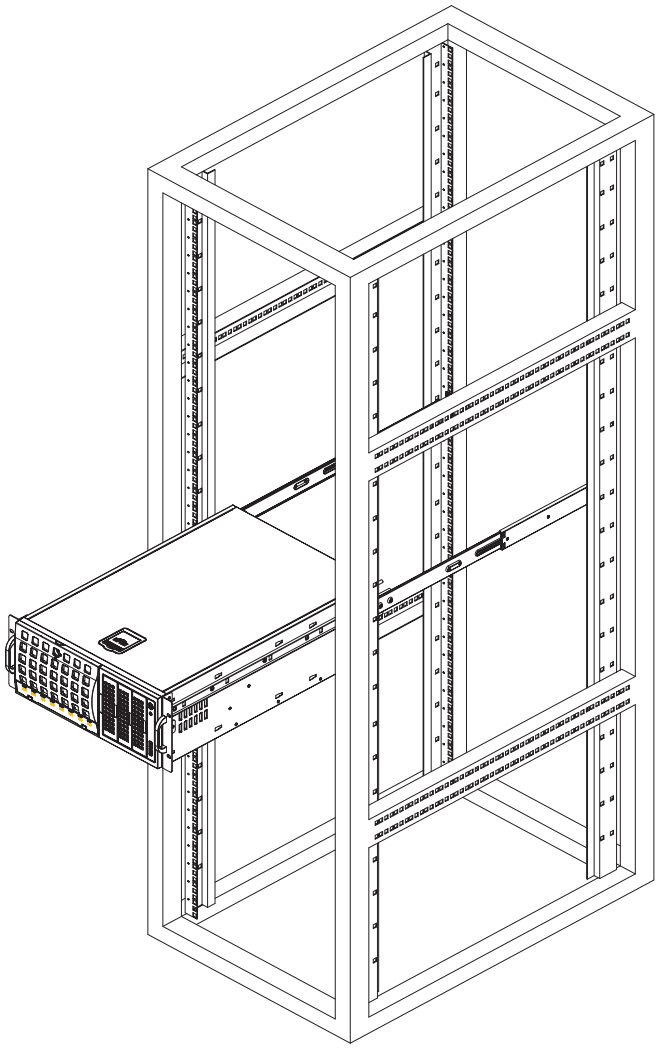


Figure 6-5. Installing the Rack Rails

To install the chassis into a rack

1. Confirm that chassis includes the inner rails and the outer rails.

2. Line chassis rails with the front of the rack rails (C).

3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click".

6-5 Tower Mounting Instructions

The SC745 chassis is shipped with the chassis cover and feet pre-installed. To use the chassis as a desktop server, no other installation is required.

Use the instructions in this section if you have converted the chassis for rack use and need to return the chassis to tower mounting.

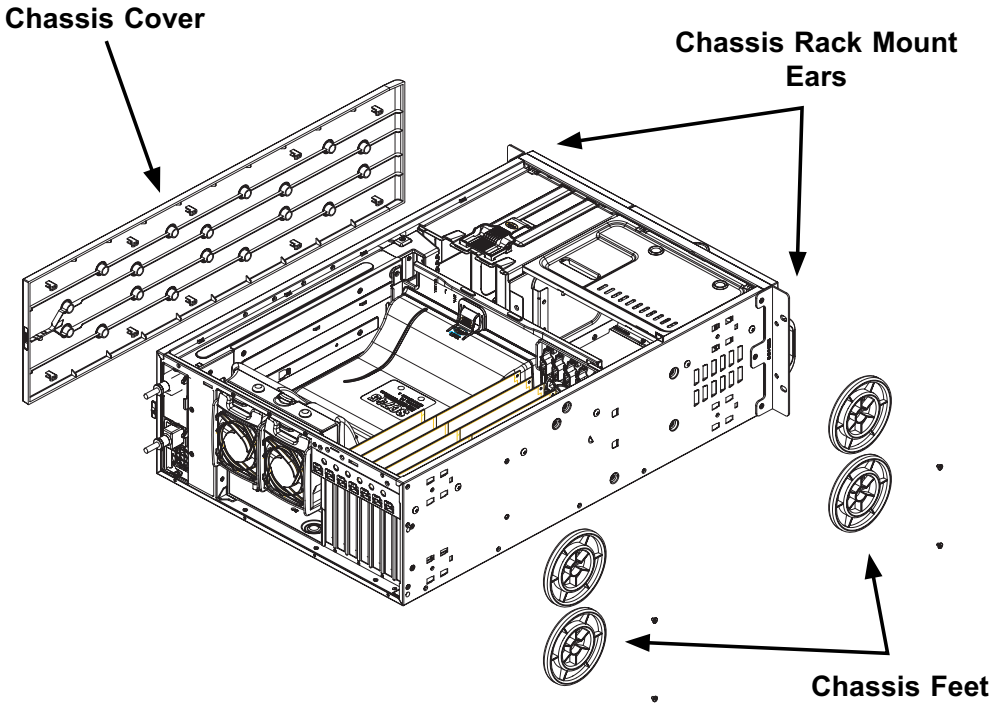


Figure 6-6: Adding Chassis Feet and Top Cover

To install the chassis cover

1. Remove the rack mount ears.

2. Align the cover post with the corresponding holes on the top of the chassis and place the cover on top of the chassis. The cover should overhang approximately one-half inch over the front of the chassis.

3. Slide the chassis cover toward the rear of the chassis to lock the cover into place.

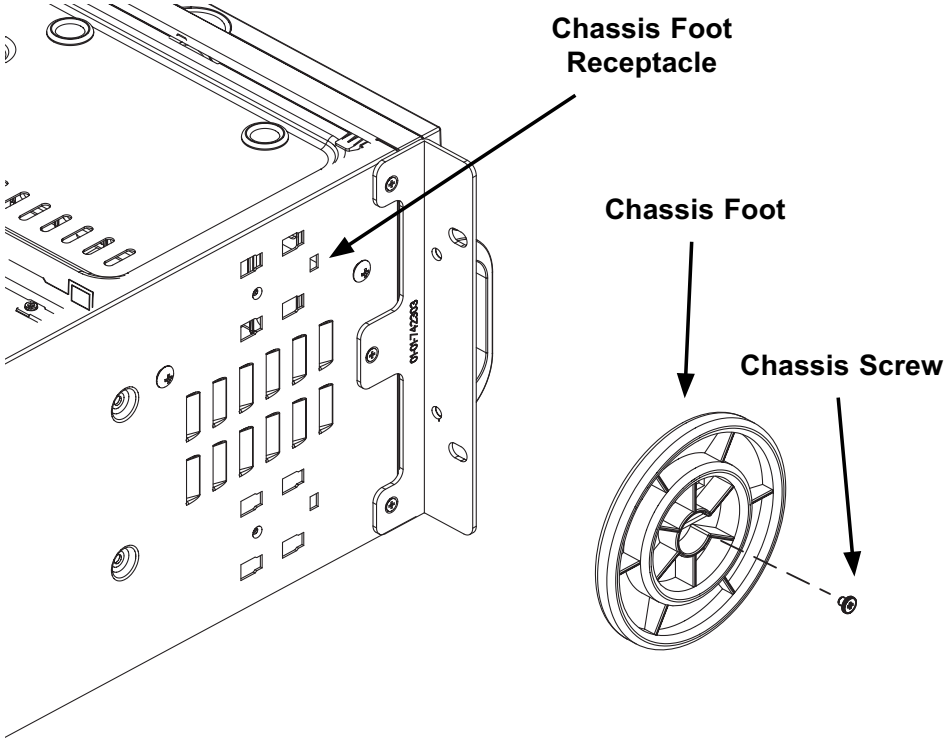


Figure 6-7: Placing Chassis Feet

To place chassis feet

1. Place the chassis foot in the foot receptacle and slide the foot toward the front of the chassis. The foot should lock into place.

2. Secure the foot to the chassis using one screw enclosed in the packaging.

3. Repeat steps 1 and 2 for the remaining three chassis feet.

Notes

Appendicies

Appendix A: Compatible Cables

Appendix B: SC745 Power Supply Specifications

Appendix C: SCA 743S2 Backplane Manual

Appendix D: SAS 743TQ Backplane Manual

Appendix E: CSE-M35S/CSE-M35T1 Mobile Rack

Notes

Appendix A:

SC745 Chassis Cables

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC745TQ Chassis (SAS/SATA)

SC745TQ-R800/800			
Part #	**Type**	**Length**	**Description**
CBL-0157L	Cable	9"	8 pin to 8 pin ribbon cable for SGPIO, PB free
CBL-0087	Ribbon, Round	20"	16 pin to 16 pin ribbon cable for control panel
CBL-0139L	Wire	50 cm	IDE 80-Wire cable for DVD ROM
CBL-0044L	Cable	24"	Serial ATA, Lead free
CBL-0209L	Cable	210mm	4 to 3 pin fan power cable (3)
CBL-0180L	SATA	various	Set for 4 SATA Cables. Length varied to minimize airflow interference.
-	Cable	6'	Regional power cord (X2 for redundant power supply models)

A-3 Cables Included with SC745S Chassis (SCSI)

SC745S2-R800/800			
Part #	**Type**	**Length**	**Description**
CBL-033L-U320	Ribbon	9" (23 cm)	ULTRA 320, PB FREE
CBL-0087	Ribbon, Round	20"	16 pin to 16 pin ribbon cable for control panel
CBL-0063L	Cable	20"	Ultra 320, Lead free
CBL-0209L	Cable	210mm	4 to 3 pin fan power cable (3)
-	Cable	6'	Regional power cord (X2 for redundant power supply models)

A-4 Compatible Cables

These cables are compatible with the SC745 Chassis.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32 pin) connector on one end and 4 SAS connectors (7 pins each) at the other. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one ipass (SFF-8087/mini-sas) connector (36 pins) at one end and 4 SAS connectors on one end. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Super Micro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24 pin	**CBL - 0042**	**7.9”(20 CM)**
20 pin	**CBL - 0059**	**7.9”(20 CM)**
8 pin	**CBL - 0062**	**7.9”(20 CM)**
4 pin	**CBL - 0060**	**7.9”(20 CM)**

Front Panel to the Motherboard

The SC745 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard**	**Cable Part #**
16 pin	**16 pin**	**CBL - 0049**
16 pin	**20 pin**	**CBL - 0048**
20 pin	**20 pin**	**CBL - 0047**
16 pin	**various***	**CBL - 0068**
20 pin	**various***	**CBL - 0067**

* Split Cables: Use these cable if your motherboard requires several different connections from the front panel.

Notes

Appendix B:

SC745 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

	800W (Redundant = X2)
MFR Part #	PWS-801-1R
Rated AC Voltage	100 - 240V 50 - 60Hz 10 - 4 Amp
+5V standby	4 Amp
+12V	66 Amp

Notes

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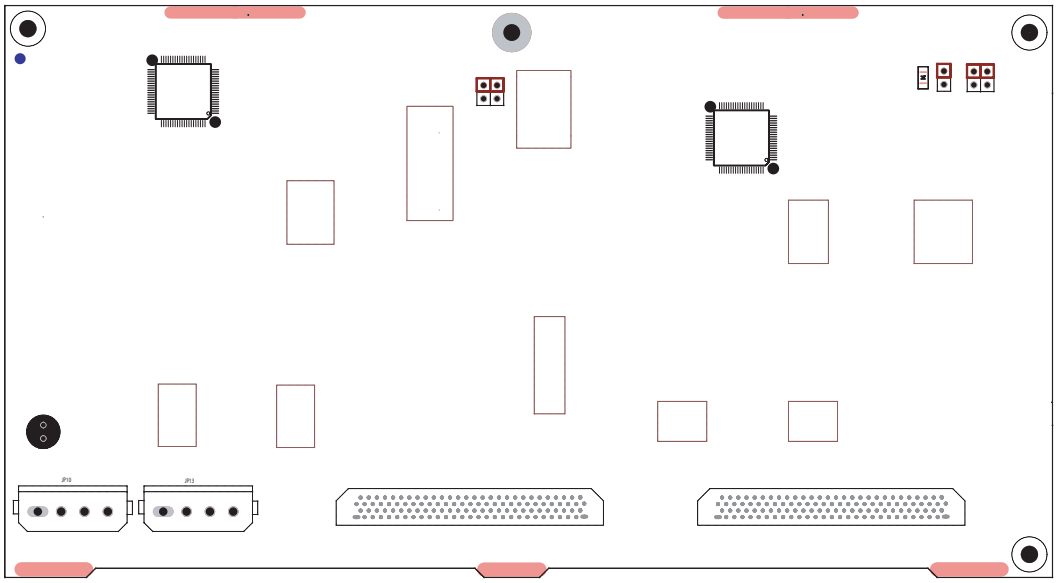

SCA 743S2 Backplane

USER'S GUIDE

Rev. 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

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Manual Revision 1.0

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Chapter 1:

Safety Guidelines

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

1-1 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the RAID card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

1-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

1-3 An Important Note to Users

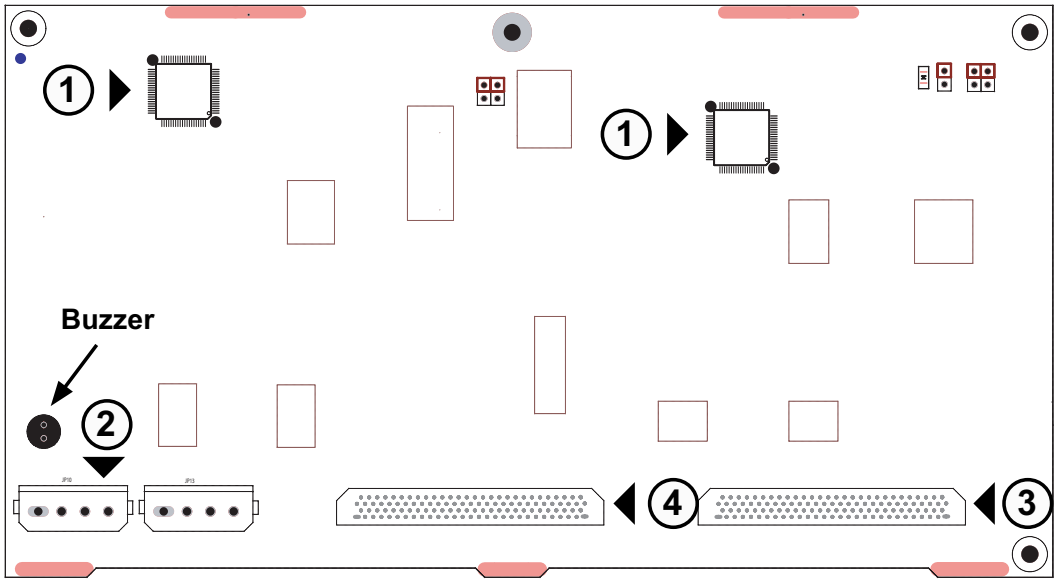
- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Notes

Chapter 2:

Jumper Settings and Pin Definitions

2-1 Front Connectors and Jumpers



Front Connectors

1. GEM 318 Chips
2. Backplane Main (4-Pin) PWR: JP10 and JP15
3. SCSI Channel A: LVD1
4. SCSI Channel B: LVD2

2-2 Front Connector and Pin Definitions

#1. GEM Chip (SAF-TE: SCSI Accessed Fault-Tolerant Enclosures)

The GEM chip allows the system to monitor the status of the disk drives and provides disk drive information to the user through the LED indicators and buzzers.

This function is only available when a RAID controller with a Raid set is present and enabled.

SAF-TE LED Indicators

LED #	Location	Description
D4	Front	Overheat or Drive Failure (red light, flashing, buzzer on)
D5	Rear	A-ID# 0 Fail LED (red light, flashing, buzzer on)
D6	Rear	A-ID# 1 Fail LED (red light, flashing, buzzer on)
D16	Rear	A-ID# 2 Fail LED (red light, flashing, buzzer on)
D27	Rear	A-ID# 3 Fail LED (red light, flashing, buzzer on)
D17	Rear	B-ID# 0 Fail LED (red light, flashing, buzzer on)
D22	Rear	B-ID# 1 Fail LED (red light, flashing, buzzer on)
D23	Rear	B-ID# 2 Fail LED (red light, flashing, buzzer on)
D25	Rear	B-ID# 3 Fail LED (red light, flashing, buzzer on)

#2. Backplane Main Power Connectors

The 4-pin connector, designated JP10 and JP15, provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector (JP10 and JP15)

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

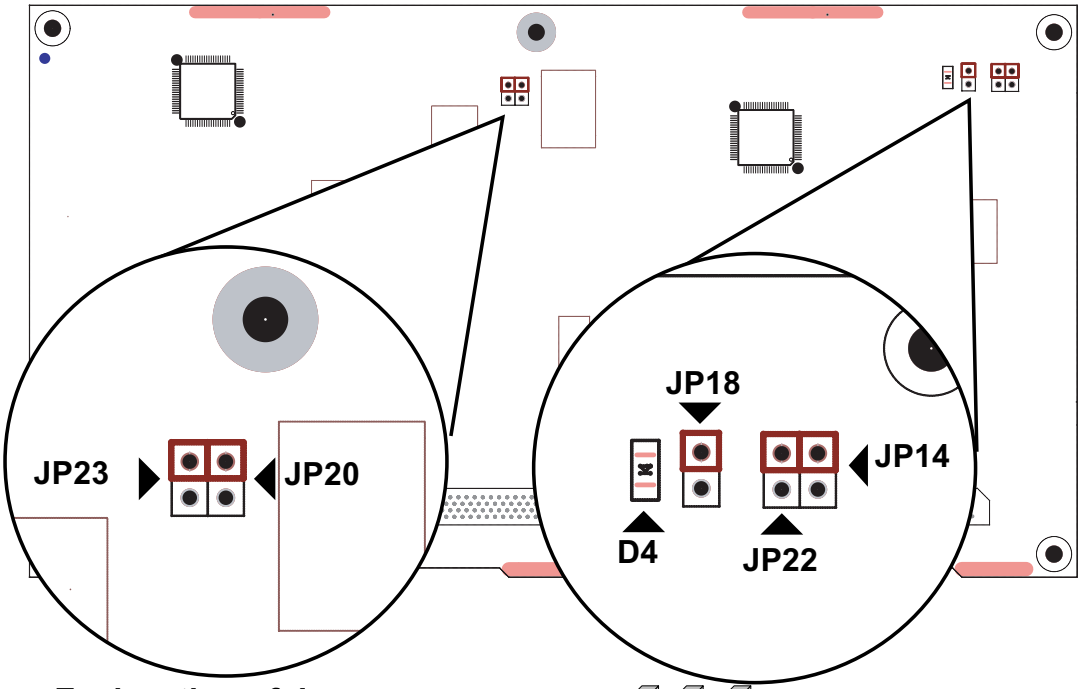
#3. and #4. Ultra 320 SCSI Connector (LVD1 and LVD2)

The Ultra 320 SCSI connectors, LVD1 and LVD2, join the backplane to the server motherboard.

Ultra320 SCSI Drive Connector Pin Definitions (LVD1 and LVD2)

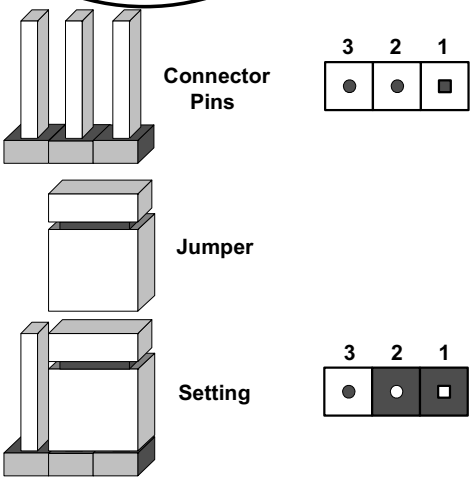
Pin#	Definition	Pin #	Definition
1	+DB (12)	35	-DB (12)
2	+DB (13)	36	-DB (13)
3	+DB (14)	37	-DB (14)
4	+DB (15)	38	-DB (15)
5	+DB (P1)	39	-DB (P1)
6	+DB (0)	40	-DB (0)
7	+DB (1)	41	-DB (1)
8	+DB (2)	42	-DB (2)
9	+DB (3)	43	-DB (3)
10	+DB (4)	44	-DB (4)
11	+DB (5)	45	-DB (5)
12	+DB (6)	46	-DB (6)
13	+DB (7)	47	-DB (7)
14	+DB (P)	48	-DB (P)
15	Ground	49	Ground
16	DIFFSENS	50	Ground
17	TERMPWR	51	TERMPWR
18	TERMPWR	52	TERMPWR
19	Reserved	53	Reserved
20	Ground	54	Ground
21	+ATN	55	-ATN
22	Ground	56	Ground
23	+BSY	57	-BSY
24	+ACK	58	-ACK
25	+RST	59	-RST
26	+MSG	60	-MSG
27	+SEL	61	-SEL
28	+C/D	62	-C/D
29	+REQ	63	-REQ
30	+I/O	64	-I/O
31	+DB (8)	65	-DB (8)
32	+DB (9)	66	-DB (9)
33	+DB (10)	67	-DB (10)
34	+DB (11)	68	-DB (11)

2-3 Front Jumper Locations and Pin Definitions



Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. **Note:** On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



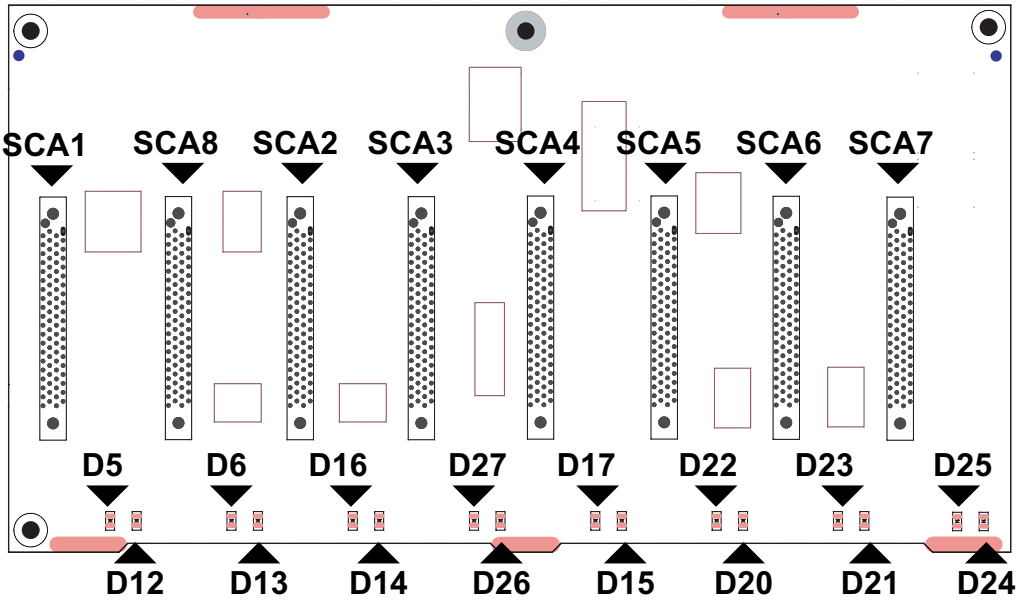
Jumper Settings

Jumper	Jumper Settings	Note
JP14	Closed: Enabled Open: Disabled	A-Delay Start Enable
JP18	Closed: Enabled Open: Disabled	Buzzer Enable
JP20	Closed: Enabled Open: Disabled	B-Delay Start Enable
JP22	Closed: Enabled Open: Disabled	A-Remote Start Enable
JP23	Closed: Enabled Open: Disabled	B-Remote Start Enable

FRONT LED INDICATORS

Backplane LED		
LED	**STATE**	**SPECIFICATION**
D4	ON	Overheat/Drive Failure LED Indicator (Red light: flashing, Buzzer: On)

2-4 Rear Connectors and LED Indicators



Rear SCA Connectors		
Rear Connector	**Connector Number**	**SCA Drive Number**
SCA1	A - ID #0	SCA HDD #0
SCA8	A - ID #1	SCA HDD #1
SCA2	A - ID #2	SCA HDD #2
SCA3	A - ID #3	SCA HDD #3
SCA4	B - ID #0	SCA HDD #4
SCA5	B - ID #1	SCA HDD #5
SCA6	B - ID #2	SCA HDD #6
SCA7	B - ID #3	SCA HDD #7

Rear LED Indicators					
Rear LED	**Connector Number**	**Hard Drive Activity**		**Failure LED**	
SCA1	A - ID #0	D12	A-ACT1	D5	A-FAIL1
SCA8	A - ID #1	D13	A-ACT2	D6	A-FAIL2
SCA2	A - ID #2	D14	A-ACT3	D16	A-FAIL3
SCA3	A - ID #3	D26	A-ACT4	D27	A-FAIL4
SCA4	B - ID #0	D15	A-ACT5	D17	A-FAIL5
SCA5	B - ID #1	D20	A-ACT6	D22	A-FAIL6
SCA6	B - ID #2	D21	A-ACT7	D23	A-FAIL7
SCA7	B - ID #3	D24	A-ACT8	D25	A-FAIL8

2-5 SCSI (Super) GEM Installation Instructions for the Windows Operating System

The following instructions describe how to install the SCSI GEM Driver for the Windows OS systems. This driver is not necessary for other Operating Systems. If you have two SCA backplanes, you will need to install the driver twice.

The driver is located on the Super Micro motherboard driver CD or is available for download from our FTP site: *ftp://ftp.supermicro.com/driver/SCSI_Backplanes/Qlogic/*

Use ONE of the following Windows installation procedures to install the drivers to your system.

Windows Driver Installation Procedure A

1. Right click on “My Computer” and choose “Properties”.
2. Select “Hardware” tab and click “Device Manager”.
3. Open “Other Devices” or wherever “GEM318” is located.
4. Right click on this device and choose “Properties”.
5. Click on “Driver” tab and choose “Update Driver”.
6. Click “Next” twice, uncheck both “Floppy disk drives” and “CD-ROM drives”.

7. Select “Specify a location,” and choose “Next”.
8. Click on “Browse” and choose D drive or wherever Supermicro Setup CD is in.
9. Choose “Qlogic” folder and click on “Open”.
10. System will automatically detect the GEM318 chip and install the drive from this point on.

Windows Driver Installation Procedure B

1. Right click the "My Computer" icon on your desktop and choose Properties.
2. Click on the Hardware tab and click on "Device Manager" to bring up the list of system devices.
3. You may see one or two yellow question marks (?) that read QLogic GEM354 or GEM318 SCSI Processor Device. Right click on these, and choose to uninstall. If both devices have question marks, uninstall both.
4. Click on Action tab and choose "Scan for Hardware Changes". The Hardware Wizard program should start up. Click "Next".
5. At the first prompt, choose “Display a list of known device drivers for the device so that I can choose a specific driver” and click "Next".
6. Choose “Other Devices” and click Next.
7. Choose “Have Disk”, and specify your floppy drive location in the options box. Then, click "Next".
8. Highlight “Enclosure Services Device” and click "Next".
9. Ignore the warning prompt by clicking "Yes".

Notes

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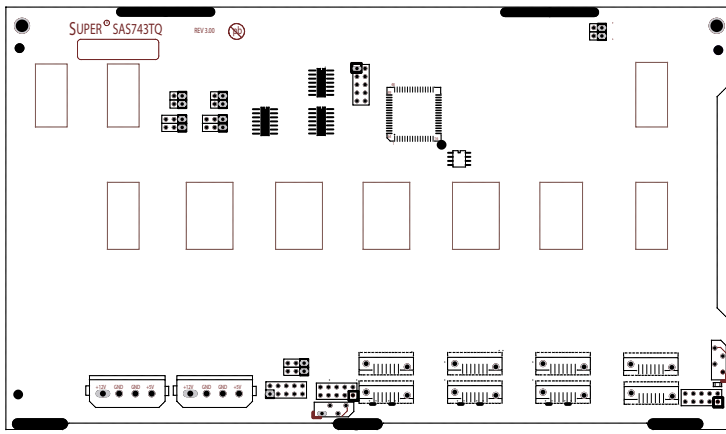

SAS 743TQ Backplane

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User's Guide Revision: Rev. 1.0
Release Date: 08/04/2006

Safety Information and Technical Specifications

1. Safety Guidelines

To avoid personal injury and property damage, please carefully follow all the safety steps listed below when accessing your system or handling the components:

ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the RAID card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the SAS 743TQ Backplane.
- Disconnect the power cable before installing or removing any cable from the SAS 743TQ Backplane.
- Make sure that the SAS 743TQ Backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

An Important Note to the User

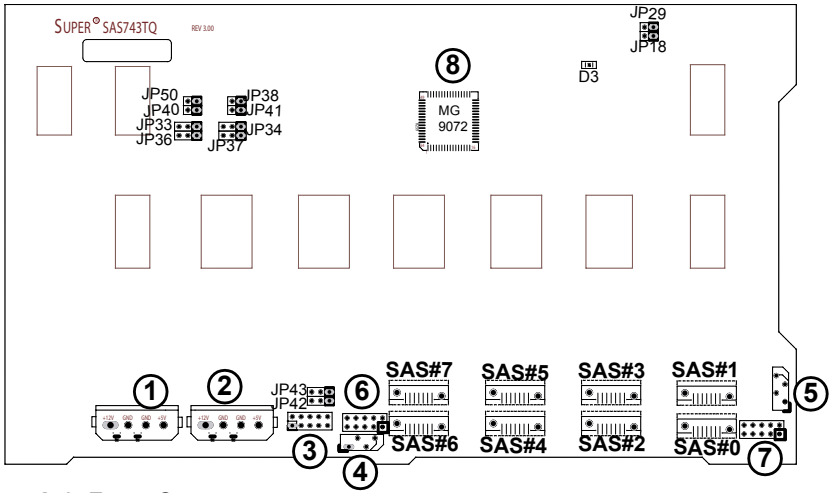
- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you've received may or may not look exactly the same as the graphics shown in this manual.

2. Jumper Settings and Pin Definitions

A. Front Connectors and Jumpers

A-1 Front Jumper/Connector Locations

Front View



A-2. Front Connectors

#1. JP10: 4-Pin PWR Connector
#2. JP13: 4-Pin PWR Connector
#3. JP26: Activity In LED Header
#4. JP45: I^2C Connector#2
#5. JP44: I^2C Connector#1
#6. JP52: SideBand #2
#7. JP51: SideBand #1
#8. MG9072

A-2a. Front SAS Connectors & Locations

J5: SAS #0
J6: SAS #1
J7: SAS #2
J8: SAS #3
J10: SAS #4
J12: SAS #5
J14: SAS #6
J16: SAS #7

(*__Note__: See Section B-2 on Page 1-7 for Front/Rear SAS Connectors & Locations.)

A-3. Front Connector Pin Definitions

#1/#2. Backplane Main Power Connectors (JP10, JP13) Pin Definitions

You must use the 4-pin power connectors: JP13, JP10 to provide adequate power to the Backplane. See the table on the right for pin definitions.

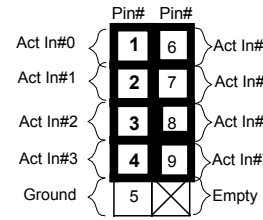
Backplane Main PWR 4-pin Connector

Pins #	Definition
1	+12 V
2 & 3	Ground
4	+5V

#3. Activity LED Header: JP26 Pin Definitions

The Activity LED Header, located at JP26 on the front panel, transmits signals to indicate the activity status of each SAS slot. For the Activity LED Header to work properly, please connect an 8-pin LED cable to Pin 1 to Pin 4 and Pin 6 to Pin 9 of JP26 as shown on the right. See the table in Section A-5 for pin definitions.

JP26
SAS Activity LED



#4/#5. I²C Connectors: JP45 (I²C#2)/JP44 (I²C#1)

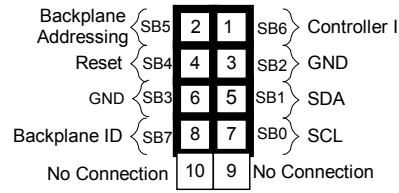
There are four I² C Connectors on the Backplane. See the table on the right for pin definitions.

I²C Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#6/#7. Sideband Headers: JP52 (Sideband#2)/JP51 (Sideband#1)

The Sideband Headers are located at JP52/JP51 on the front panel. For SAS-II to work properly, please connect an 8-pin Sideband cables to JP52/JP51 as shown on the right. See the table for pin definitions.



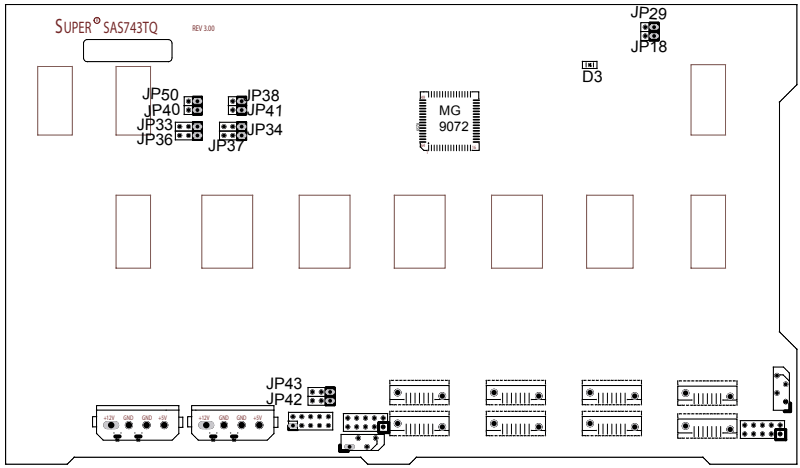
#8. AMI MG9072 Chip

(*Note: Please refer to Pg. 1-7 for SAS Connectors/Locations

A-4 Front Panel LED Indicator:

Front LED	State	Specification
D3 (Front)	On	Overheat or Drive Failure

Front Jumper/LED Locations

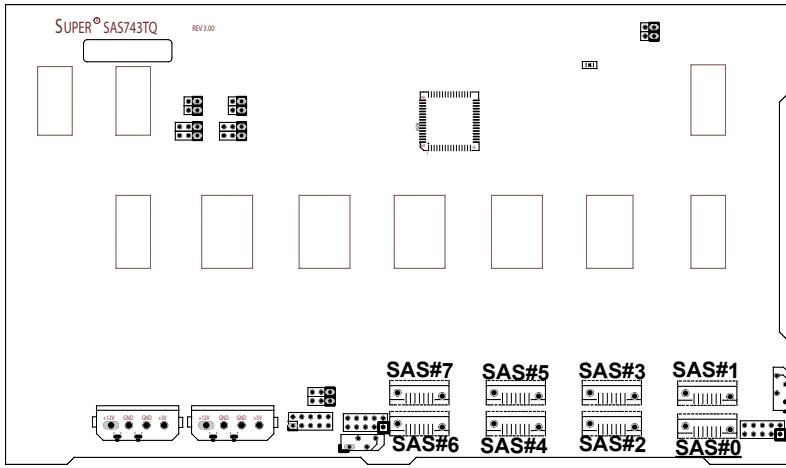


A-5 Front Jumpers and Pin Definitions

Front Jumpers			
Jumper	**Note**	**SGPIO Setting**	**I²C Setting (*Default)**
JP18	Closed: Buzzer Reset	Open	Open
JP29	Closed: MG9072 Reset	Open	Open
JP33	Controller ID#1 1-2: SGPIO 2-3: I²C	1-2	2-3
JP34 (*Note)	Backplane ID#1 1-2: ID#0 2-3: ID#1	1-2 (*Note)	1-2
JP36	Controller ID#2 1-2: SGPIO 2-3: I²C	1-2	2-3
JP37 (*Note)	Backplane ID#2 1-2: ID#0 2-3: ID#1	2-3 (*Note)	2-3
JP38	I²C Reset #2 On: I²C Off: SGPIO	Off	On
JP40	I²C Reset_SDOUT#1 On: SGPIO Off: I²C	On	Off
JP41	I²C Reset_SDOUT#2 On: SGPIO Off: I²C	On	Off
JP42	I²C Backplane ID_SDIN#1 1-2: SGPIO 2-3: I²C	1-2	2-3
JP43	I²C Backplane ID_ SDIN#2 1-2: SGPIO 2-3: I²C	1-2	2-3
JP50	I²C Reset #1 On: I²C Off: SGPIO	Off	On
***Note**: For the SGPIO setting to work properly for JP34 and JP37, you need to select different Backplane IDs for JP34 and JP37. When JP34 is set to 1-2 (ID#0), please set JP37 to 2-3 (ID#1). When JP34 is set to 2-3 (ID#1), please set JP37 to 1-2 (ID#0).			

A-6 Front/Rear SAS Connectors and Locations

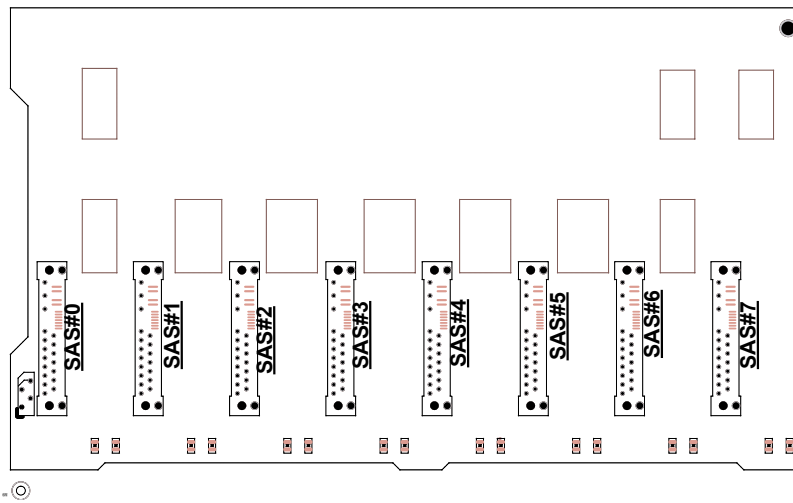
Front View



* Front/Rear SAS Connector Location Table

Front Panel Location	SAS Connector#	Back Panel Location
J5 (Front View)	SAS#0	J1 (Rear View)
J6 (Front View)	SAS#1	J2 (Rear View)
J7 (Front View)	SAS#2	J3 (Rear View)
J8 (Front View)	SAS#3	J4 (Rear View)
J10 (Front View)	SAS#4	J9 (Rear View)
J12 (Front View)	SAS#5	J11 (Rear View)
J14 (Front View)	SAS#6	J13 (Rear View)
J16 (Front View)	SAS#7	J15 (Rear View)

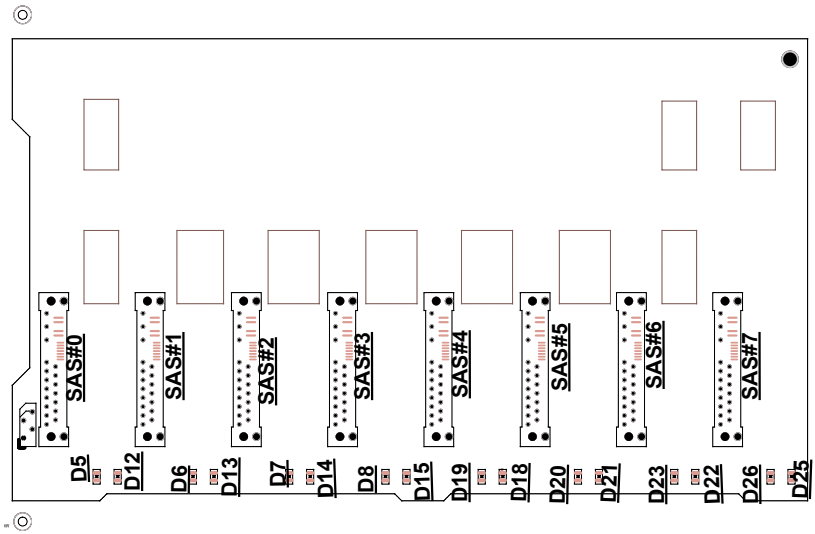
Rear View



B. Rear Connectors and LED Indicators

B-1 Rear SAS Connector/LED Indicator Locations

Rear View



B-2 Rear Connector/LED Indicator Descriptions

Rear SAS Connectors

Rear SAS Connectors	
Connector	**Specification**
J1	SAS#0 HDD (connected to HDD)
J2	SAS#1 HDD (connected to HDD)
J3	SAS#2 HDD (connected to HDD)
J4	SAS#3 HDD (connected to HDD)
J9	SAS#4 HDD (connected to HDD)
J11	SAS#5 HDD (connected to HDD)
J13	SAS#6 HDD (connected to HDD)
J15	SAS#7 HDD (connected to HDD)

Rear LED Indicators

Rear LED Indicators	Specification
D12	SAS#0 Activity LED
D13	SAS#1 Activity LED
D14	SAS#2 Activity LED
D15	SAS#3 Activity LED
D18	SAS#4 Activity LED
D21	SAS#5 Activity LED
D22	SAS#6 Activity LED
D25	SAS#7 Activity LED
D5	SAS#0 Failure LED
D6	SAS#1 Failure LED
D7	SAS#2 Failure LED
D8	SAS#3 Failure LED
D19	SAS#4 Failure LED
D20	SAS#5 Failure LED
D23	SAS#6 Failure LED
D26	SAS#7 Failure LED

B-3 The AMI MG9072 SES-2 Controller (SCSI Enclosure Services-2) LED Indicators

The AMI MG 9072 allows the system to use a set of pre-defined SES commands to monitor the status of disk drives and provide disk drive information to the user through LED indicators and alarms/buzzers. (*Note: This function is available only when a RAID controller with a RAID set is present and enabled. Please refer to the table below for the information on SES-2 LED Indicators.)

Front LED	State	Specification
D3 (Front)	On	Overheat or Drive Failure

Rear LED Indicators	Specification
D5	SAS#0 Failure LED
D6	SAS#1 Failure LED
D7	SAS#2 Failure LED
D8	SAS#3 Failure LED
D19	SAS#4 Failure LED
D20	SAS#5 Failure LED
D23	SAS#6 Failure LED
D26	SAS#7 Failure LED

Failure LED Patterns with SMC's Onboard SAS I^2C Controller		
Status	**Red LED**	**Buzzer**
Drive Failure	Solid On	On
Rebuilding	Blinking @ 1Hz	Off
Rebuilding Completed	Off	Off
Hot Spare	Blink Twice and One Stop @ 1Hz	Off
Identifying	Blinking @ 4Hz	Off
Testing Buzzer	Off	On
Overheat	On	On
Fan Failure	On	On

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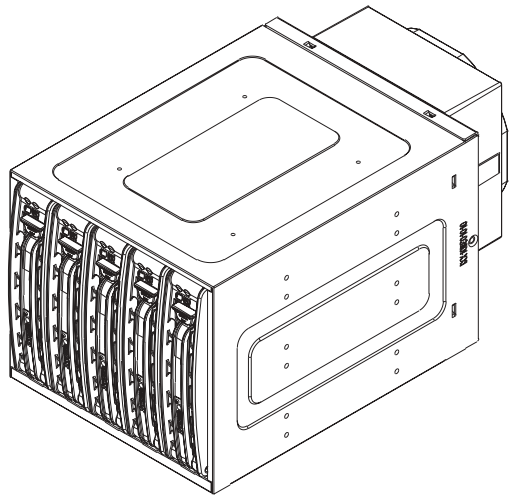

CSE-M35S/CSE-M35T1

Mobile Rack

USER'S GUIDE

1.0

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CSE-M35S/CSE-M35T1

Supermicro's CSE-M35S/CSE-M35T1 Mobile Rack Series offers the cutting edge technology with greater flexibility. The CSE-M35T1 supports five Serial ATA hot-swappable hard drives that yield a unparalleled storage capacity without compromising productivity by eliminating possible system downtime. The CSE-M35S also accommodates five SCSI SCA 320/160 Hard drives which provide configuration flexibility and maximum data integrity.

1. Packing List

Please check to see if you have received all the items listed below:

*CSE-M35S/CSE-M35T1 Mobile Rack
*90mm-Exhaust Fan (Fan-0057)
*Screws: Thirteen (13) counts of Flat Head Screws
Twenty-four (24) counts of Round Head Screws
Seven (7) counts of Round Head Screws with Lock-Washer
*Drive Carrier Five (5)CSE-PT17/CSE-PT17(B)(-black)

(*For CSE-M35T1 only)
*Serial ATA Backplane (CSE-SATAM35)
*Five (5) Serial ATA Cables (CBL-0044)
*Serial ATA LED cable (CBL-0057)

(*For CSE-M35S only)
*SCSI Backplane (CSE-SCAM942)
*SCSI cable (CBL-027-U320)

2. Technical Specifications

Occupancy	Three (3) 5.25" Drive Bays
Capacity	Five (5) 1" SCA Ultra320/160 Hard Drives with SAF-TE built-in (*CSE-M35S only) Five (5) 1" Host Receptacle Connectors, SATA hot-swap hard drives (*CSE-M35T-1 only)
Cooling Subsystem	One (1) 90mm (9cm) Exhaust Fan
System Monitoring	*Fan Fail Detection LED and Alarm *Overheat LED indication *Drive Fail Alarm and Indication (*CSE-M35S only) *Built-in Termination (*CSE-M35S only)
Dimension (WxHxD)	146mm x 129mm x 245mm (5.7 in x 5.0 in x 9.6 in)
Weight	Net: 5.9lb (2.9 kg), Gross: 7.5lb (3.7 kg)

Chassis supported:

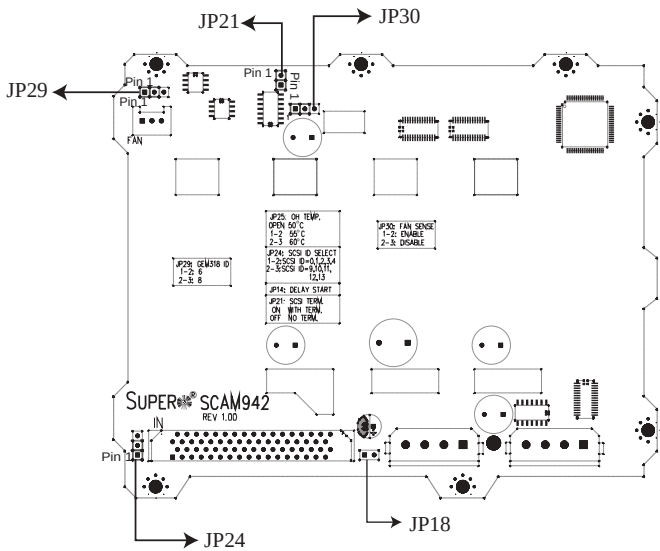
SC762, SC830, SC942

3. Jumper Settings

A. Jumper Settings for the CSE-M35S (SCSI):

Jumper	Description	Setting
JP18	Buzzer Reset	Closed: Enable, Open: Disable (*Default)
JP21	SCSI Termination	Closed: Enable (*Default), Open: Disable
JP24	SCSI ID Selection	1-2: SCSI Ids: 0,1,2,3,4 (*Default), 2-3: SCSI Ids: 9,10,11,12,13
JP29	GEM 318 IDs	1-2: ID6 (*Default), 2-3: ID8
JP30	Fan Sense	Pins 1-2: Enable (*Default) (If a fan is not present, the alarm will sound.), Pins 2-3: Disable

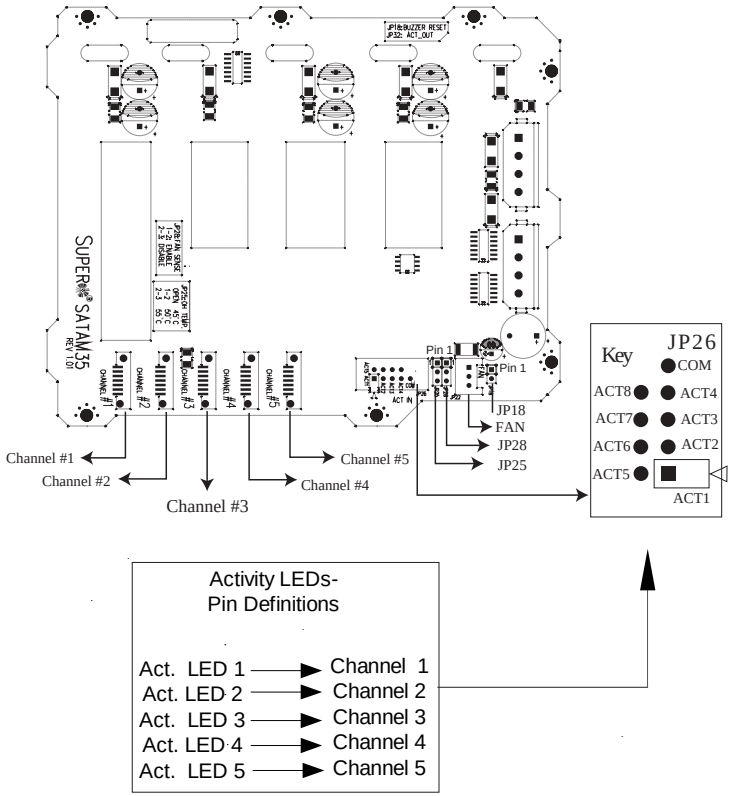
Location of Jumpers



B. Jumper Settings for the CSE-M35T1 (SATA):

Jumper	Description	Setting
JP18	Buzzer Reset	Closed: Enable, Open: Disable (*Default)
JP25	Overheat Temperature	Open: 45°C 1-2: 50°C (*Default), 2-3: 55°C
JP26	Act#1-Act#5	Connect this header to CBL-0057 (SATA LED Cable)
JP28:	Fan Sense	1-2: Enabled (if a fan is not present, the alarm will sound) (*Default) 2-3: Disabled

Location of Jumpers



4. Installation Procedures

(*Note:

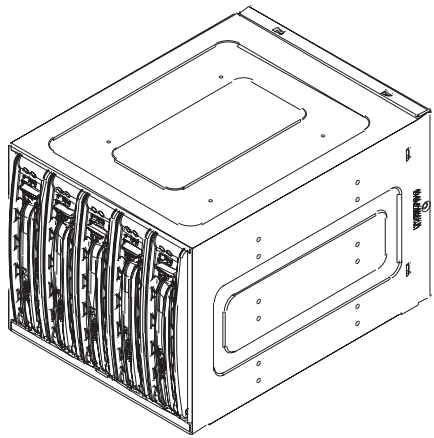
For the CSE-M35S:

1. SCSI IDs are assigned automatically by the backplane. **Do not set IDs manually on the drives.** See the previous section for SCSI ID jumper settings.

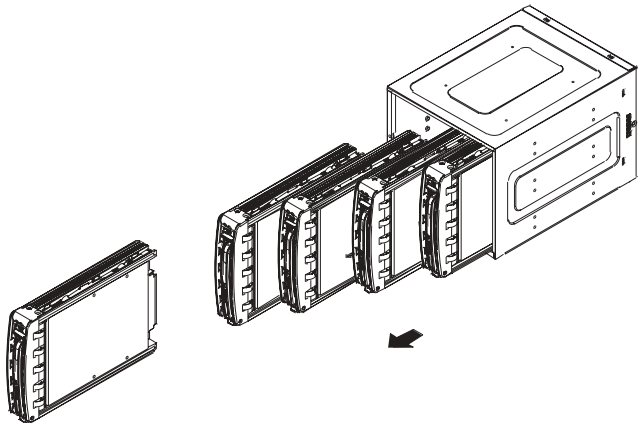
2. SCSI termination is enabled by default on the SCSI backplane.)

A. Accessing Hot Swappable Drives:

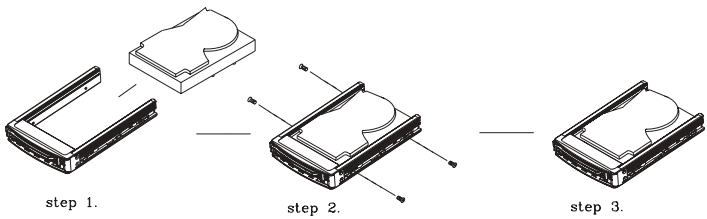
1.Push the release button located beside the drive LEDs (as shown below:)



2. Swing the handle outward and pull out the unit (as shown below:)

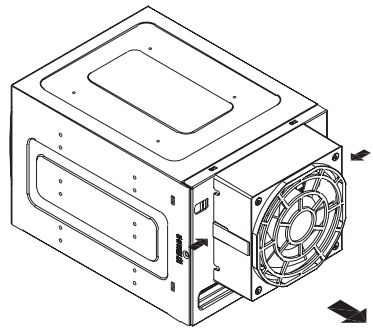


3. Mount a drive in a carrier (as shown below:)

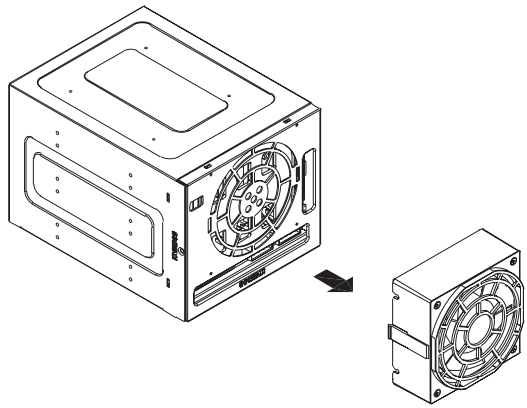


B. Accessing the Exhaust Fan:

1.Push the tabs located on both sides of the unit (as shown below:)



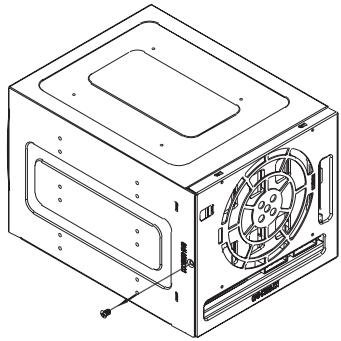
2. Pull out the fan (as shown below:)



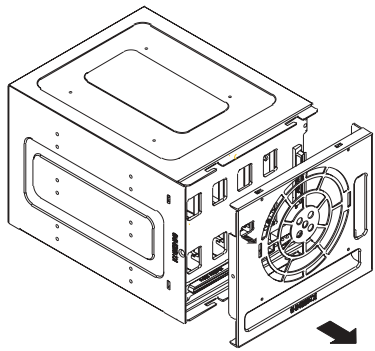
(*Note: For the SC-942 Chassis, the CSE-M35 Rear Exhaust Fan should not be used. Instead, the hot-swappable 120mm Chassis Fans included with the SC-942 Chassis should be connected to the Backplane of the CSE-M35S/CSE-M35T1 Mobile Rack.)

C. Accessing the Drive Backplane:

1. Unscrew the screw located on the side of the unit (as shown below:)



2. Pull out the Rear Bracket (as shown below:)



3. Access the Backplane (as shown below:)